



The African Advanced Level Telecommunications Institute (AFRALTI)

Digital Technologies and Management of Information Systems Department
(DT-MIS)

Linux Essentials

Entry Level Linux Professional

What Is Linux?

Linux is a open source operating system based on UNIX. It is a remarkably Powerful, Secure and Reliable platform—one that is supplanting Windows and UNIX systems in competitive Enterprises around the globe, hence Saving Cost considerably and enjoying Better Quality of Service, Availability, Scalability, Security, and Interoperability.

To best enjoy the advantages and benefits Linux brings, it is necessary to train staff on how to operate this platform. This course does just that.

Course Overview

This course covers Essential skills for the Entry Level Linux professional that are common across all distributions of Linux. Participants learn the fundamental skills, Commands and approach needed to successfully start using Linux, and prepares them for more advanced Linux System Administration tasks.

On successful completion of the course participants receive a Certificate of Course Completion from AFRALTI. It also prepares students for the LPIC Level 1 Certification (Linux Professional Institute Certification - Junior Level Linux Professional) and the CompTIA Linux + Certification.

Prerequisites : In order to successfully complete this course, participants should at least be Basic PC users with knowledge of PC Operating System and Hardware.

Structure : This is a 30-hour Instructor led Hands-on course conducted in a computer lab environment, with short lecture sessions.

Duration: 30 Hours (2 Weeks part time)

Morning : 9am-12noon

Afternoon : 2pm-5pm.

Evening : 5:30pm - 8:30pm

Tuition Fees: Ksh 15,000

Course Details

Week 1

Main Objectives:

- **Hardware & Architecture**
- **Linux Installation & Package Management**
- **GNU & Unix commands**
- **Devices, Linux File systems, File system Hierarchy Standard**
- **The X Window System**

Detailed Objectives

Hardware & Architecture

- Configure Fundamental BIOS Settings
- Configure Modem and Sound cards
- Setup non-IDE Devices
- Setup different PC expansion cards
- Configure Communication Devices

- Configure USB devices

Linux Installation & Package Management

- Design hard disk layout
- Install a boot manager
- Make and install programs from source
- Manage shared libraries
- Use Debian package management
- Use Red Hat Package Manager (RPM)

GNU & Unix Commands

- Work on the command line
- Process text streams using filters
- Perform basic file management
- Use streams, pipes and redirects
- Create, monitor and kill processes
- Modify process execution priorities
- Search text files using regular expressions
- Perform basic file editing operations using *vi*

Devices, Linux Filesystems, Filesystem Hierarchy Standard

- Create partitions and filesystems
- Maintain the integrity of filesystems
- Control mounting and unmounting filesystems
- Managing disk quota
- Use file permissions to control access to files
- Manage file ownership
- Create and change hard and symbolic links
- Find system files and place files in the correct location

The X Window System

- Install & Configure X11
- Setup a display manager

- Install & Customize a Window Manager Environment

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Week 2

Main Objectives:

- Kernel
- Boot, Initialization, Shutdown and Runlevels
- Printing
- Documentation
- Shells, Scripting, Programming, and Compiling
- Administrative Tasks
- Networking Fundamentals
- Networking Services
- Security

Detailed Objectives

Kernel

- Manage/Query kernel and kernel modules at runtime
- Reconfigure, build and install a custom kernel and kernel modules

Boot, Initialization, Shutdown and Runlevels

- Boot the system
- Change runlevels and shutdown or reboot system

Printing

- Manage printers and print queues
- Print files
- Install and configure local and remote printers**rs**

Documentation

- Use and manage local system documentation
- Find Linux documentation on the Internet
- Notify users on system-related issues

Shells, Scripting, Programming and Compiling

- Customize and use the shell environment
- Customize or write simple scripts

Administrative Tasks

- Manage users and group accounts and related system files
- Tune the user environment and system environment variables
- Configure and use system log files to meet administrative and security needs
- Automate system administration tasks by scheduling jobs to run in the future
- Maintain an effective data backup strategy
- Maintain system time

Networking Fundamentals

- Fundamentals of TCP/IP
- TCP/IP configuration and troubleshooting
- Configure Linux as a PPP client

Networking Services

- Configure and manage *xinetd*, *inetd* and related services
- Operate and perform basic configuration of Mail Transfer Agent (MTA)
- Operate and perform basic configuration of Apache
- Properly manage the NFS and SAMBA daemons
- Setup and configure basic DNS services
- Set up secure shell (OpenSSH)

Security

- Perform security administration tasks

- Setup host security
- Setup user level security

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