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**Learning Style: Virtual Classroom**

**Technology: Linux Foundation**

**Difficulty: Beginner**

**Course Duration: 4 Days**

## **Fundamentals of Linux (LFS300)**



## **About this course:**

This is a challenging course that focuses on the fundamental tools and concepts of Linux and Unix. Students gain proficiency using the command line. Beginners develop a solid foundation in Unix, while advanced users discover patterns and fill in gaps in their knowledge. The course material is designed to provide extensive hands-on experience. Students will learn how to manage files and directories, utilize the vi editor, work with Linux security mechanisms to protect files and programs, work with the Linux shell to control the flow and processing of data through pipelines, design and write shell programs of moderate complexity, and manage multiple concurrent processes in order to achieve higher utilization of Linux.

The average salary of Linux Systems Engineer is **\$102,367** per year.

## **Course Objectives:**

After completing this course, students will be able to:

- Basic file manipulation.
- Basic and advanced filesystem features.
- I/O redirection and pipes.
- Text manipulation and regular expressions.
- Managing jobs and processes.
- Vi, the standard Unix editor.
- Automating tasks with shell scripts.
- Managing software.
- Secure remote administration.

## **Audience:**

- Students in this course commonly span a variety of skill levels, from beginners desiring a solid foundation in Unix to experienced users seeking to fill in gaps in their knowledge. Courseware supports latest versions of Red Hat Enterprise Linux, Fedora Core, SUSE LINUX Professional, and SUSE LINUX Enterprise Server.

## **Prerequisites:**

- Students should be comfortable with computers. No familiarity with Linux or other Unix operating systems is required.

## **Course Outline:**

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### **Introduction**

- Linux Foundation
- Linux Foundation Training

- Linux Foundation Certifications
- Linux Foundation Digital Badges
- Laboratory Exercises, Solutions and Resources
- Things Change in Linux and Open Source Projects
- Distribution Details
- Labs

## Preliminaries

- The Command Line
- Linux Distributions and Desktops
- Keeping Current
- Filesystem Layout
- Editors
- sudo
- Labs

## Linux Philosophy and Concepts

- Linux History
- Linux Philosophy
- Linux Community
- Linux Vocabulary
- Linux Distributions
- Labs

## Linux Installation

- Planning the Installation Process
- Source Media
- Doing the Install
- Labs

## Graphical Interface

- Graphical Layers
- Session Management
- Exploring the Filesystem
- Customizing the Graphical Desktop
- Labs

## System Configuration from the Graphical Interface

- System Settings
- Display Settings
- Network Manager
- NTP (Network Time Protocol)
- Graphical Software Package Management
- Labs

## Finding Linux Documentation

- Documentation Sources
- The UNIX Manual
- GNU Info
- Command Help
- Other Documentation Sources
- Labs

## Common Applications

- Internet Applications
- Office Applications
- Multimedia Applications
- Graphics Editors
- Labs

## Text Editors

- Available Text Editors
- Creating a File Without an Editor
- nano
- gedit
- Visual Studio Code
- vi
- emacs
- Labs

## Boot Process

- Bootloader
- Linux Kernel and initramfs
- init and Services
- Console
- X Window System and Desktop Manager
- Labs

## Command-line Operations

- Command Line Operations and Options
- Basic Operations
- Command Prompt
- Wildcards
- Searching for Files
- Package Management
- Labs

## User Environment

- Accounts

- Environment Variables
- Key Shortcuts
- Command History
- Command Aliases
- File Ownership and Permissions
- Labs

## Text Operations

- cat
- echo
- sed
- awk
- Miscellaneous Text Utilities
- Sorting, Cutting, Pasting, Joining, Splitting
- Regular Expressions and grep
- Labs

## File Operations

- Filesystems
- Partitions and Mount Points
- Network File System (NFS)
- Working with Files
- Comparing Files
- File Types
- Compressing Data
- Labs

## Bash Shell Scripting

- Scripts
- Features
- Functions
- Command Substitutions and Arithmetic
- If Conditions and Tests
- Looping Structures
- Case Structure
- Debugging
- Creating Temporary Files and Directories
- Labs

## Processes

- Introduction to Processes
- Process Attributes
- ps
- top
- Load Averages
- Process Control

- Starting Processes in the Future
- Labs

## Printing

- CUPS and Printer Configuration
- Printing Operations
- PostScript and PDF
- Labs

## Networking

- Addressing
- Networking Interfaces and Configuration
- Networking Utilities and Tools
- Labs

## Local Security Principles

- Local Security
- When to Use Root
- sudo
- Passwords
- Bypassing User Authentication
- Labs

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