

# Linux Fundamentals (ES100)

40 Hours

## Outline

The Linux Fundamentals for System Administrators course teaches you how to use LINUX operating system commands and basic Linux Operating Environment features. This course focuses on the fundamental concepts and tools of the Linux OS and followed by hands-on exercises and practice. You will learn essential command-line features including file system navigation, file permissions, the Nano text editor, command shells, basic network use and more.

## Target Audience

System administrators who are not familiar with LINUX operating systems

## Prerequisites

- Previous experience in any operating system
- Input commands and control characters from a keyboard

## Objectives

By the end of this course participants will be able to:

- Understand the concepts and structure of the Linux OS
- Be familiar with the Linux File-system
- Understand how to manipulate files and directories
- Use the Nano and GEdit text editor and perform commands
- Perform Text Processing
- Identify Command Shells
- Use redirections and pipes
- Understand Network basics
- Create Shell Scripts
- Update and upgrade System
- Install software, drivers and Repositories

## **Contents**

### **Module 1 – Introduction to Linux**

- Linux History
- Linux Vendor Distribution Chart
- Operating System Core
- Logging in
- Changing Password, Passwd Command
- Command Structure, Simple Commands
- Control Characters
- Man Pages
- Logging Out

### **Module 2 – The File System**

- The Linux File System Structure
- Pathnames and Directories
- Displaying hidden files, File Types, Long Listing
- Meta-characters
- Asterisk, Question Mark, Square Brackets

### **Module 3 - Manipulating Files and Directories**

- Determining File Type
- Displaying File Content Using cat, more, head, tail
- Counting using wc
- Comparing Files Using diff
- File and Directory Name Conventions
- Creating Files and Directories
- Copying Files, Moving and Renaming Files
- Zip Files, Archiving Files
- Running .exe Files

## Module 4 - File Security

- Security Overview
- Linux Accounts
- /etc/passwd file
- File Ownership
- Directory and File Access Modes
- File permissions

## Module 5 - Nano Text Editor

- The Nano Command
- Insert Mode
- Movement Command
- Command Mode
- Delete Commands, Change Commands
- Cut, Copy and Paste Command
- Last-line Mode
- Search and Replace
- File Commands
- Options

## Module 6 – Shell Overview

- Introduction to Shell ( BASH)
- Aliases
- Shell commands
- Environment commands
- Shell Initialization Files

## Module 7 - Redirections and Pipes

- Standard Input, Output and Error
- Redirecting Standard Output, Error and Input
- Appending to File
- File Overwrite Protection
- Multiple Redirections
- Merging Standard Output With Standard Error
- Pipes

## Module 8 – Power Tools

- Regular Expressions
- Commands: find, grep, cut, sort, uniq
- Text Manipulation with the tr Command and sed Command

## Module 9 - Process Management

- Process Hierarchy
- Processes and PIDs
- Process Life Line
- Managing Jobs
- Signaling with kill
- I/O Considerations
- Top and HTop
- Listing and Deleting at Jobs

## Module 10 - Network Basics

- Client Server
- Apache Web Server
- SSH
- SMB
- rlogin
- rcp and rsh