# LPI Linux Essentials v1.6

**Course Duration: 32 Hours**                    **Course code: 010-160**

## 1. Course Overview

The Linux Essentials v1.6 course prepares participants for the LPI Linux Essentials certification exam (010-160). It introduces the Linux operating system, open-source concepts, command-line usage, system administration basics, networking, and security. This course is ideal for beginners starting their Linux journey or preparing for advanced certifications like LPIC-1.

## 2. What you'll learn?

- Understand the basics of Linux and open-source software.
- Navigate the Linux filesystem using the command line.
- Work with files, directories, and text processing tools.
- Manage users, groups, and permissions.
- Perform system administration tasks such as processes and package management.
- Understand networking, security, and system troubleshooting basics.
- Gain knowledge aligned with LPI Linux Essentials exam objectives.

## 3. Target Audience

- Beginners who want to start with Linux and open-source technologies.
- IT students and professionals preparing for Linux Essentials certification.
- Windows/Mac users transitioning to Linux.
- Anyone seeking foundational Linux administration skills.

## 4. Pre-Requisites

- No prior Linux experience required.
- Basic knowledge of computers and operating systems recommended.

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# 5. Course content

## Module 1: The Linux Community and Open Source

- Evolution of Linux and open-source philosophy
- The Linux distribution ecosystem (Ubuntu, CentOS, Debian, etc.)
- Differences between open-source and proprietary software
- Licensing models: GPL, BSD, Creative Commons
- Careers and opportunities in Linux and open source

## Module 2: Finding Your Way on a Linux System

- Understanding Linux system architecture
- Logging in and basic shell usage
- Using command-line help (man, info, --help)
- Navigating the Linux filesystem (absolute vs relative paths)
- Understanding files, directories, and hidden files

## Module 3: The Power of the Command Line

- Introduction to Bash shell
- Basic commands (ls, cd, cp, mv, rm, pwd)
- File viewing and editing (cat, less, nano, vi)
- Command chaining and redirection (>, >>, |, &&)
- Using wildcards and basic regular expressions

## Module 4: The Linux Operating System

- Linux kernel overview
- Understanding processes and jobs
- Managing processes with ps, top, kill
- System boot sequence basics
- System logging and monitoring

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## Module 5: Security and File Permissions

- Users, groups, and the root account
- File ownership and permissions (rwx model)
- Changing permissions with chmod, chown, chgrp
- Understanding umask
- Basic security practices for Linux systems

## Module 6: Working with Text and Files

- Viewing and editing text files
- Searching text with grep
- Comparing files with diff and cmp
- Sorting and filtering data (sort, uniq, wc, cut)
- Using archives and compression (tar, gzip, bzip2, zip)

## Module 7: User Environment and Scripting Basics

- Environment variables and shell customization
- Aliases and history commands
- Writing simple shell scripts
- Using conditionals and loops in scripts
- Automating tasks with cron and at

## Module 8: Understanding Linux Networks

- Basics of networking concepts (IP, DNS, routing)
- Common networking commands (ping, ifconfig/ip, netstat/ss)
- Configuring basic network settings
- Remote access with SSH and scp
- Transferring files between systems

## Module 9: Managing Software and Packages

- Understanding package management systems (DEB, RPM)

- Installing, updating, and removing software (apt, yum/dnf, zypper)
- Managing software repositories
- Checking for package dependencies and updates

## Module 10: Capstone & Exam Preparation
- Review of all Linux Essentials objectives
- Hands-on lab: Setting up a Linux system from scratch