

COURSE SYLLABUS

Linux Administration Essentials

COURSE NUMBER

LNX-001

DURATION

1 day · 5 modules

AUDIENCE LEVEL

Beginner

FORMAT

Instructor-Led / Self-Paced

Course syllabus

COURSE OVERVIEW

This intensive one-day course provides foundational skills for administering Linux systems through command-line interfaces. Students will gain hands-on experience with user management, security configurations, networking, and system resource optimization using Ubuntu Linux in a virtualized environment.

AT COURSE COMPLETION

After completing this course, you will be able to:

Configure user accounts and manage permissions in Linux environments using command-line tools

Implement security best practices including SSH key authentication and firewall configuration

Establish and troubleshoot network connectivity on Ubuntu systems using netplan and diagnostic utilities

Monitor and optimize system resources using process management and disk analysis tools

Execute essential administrative tasks via command-line interface and automate routine workflows

PREREQUISITES

- Basic understanding of operating system concepts
 - Familiarity with computer file systems and directories
 - Ability to operate Windows desktop environment
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COURSE OUTLINE

MODULE 1 Linux Fundamentals and User Management

90 min

This module introduces essential Linux command-line operations and user account administration. Students will learn to navigate the file system, manage user accounts, and control access permissions.

LESSONS

Introduction to Linux Command Line

LAB EXERCISES

Lab: User Account and Permission Management

AFTER COMPLETING THIS MODULE, YOU WILL BE ABLE TO

- Navigate the Linux file system using command-line tools
- Create and manage user accounts and groups
- Configure file and directory permissions
- Modify file ownership for collaborative environments

MODULE 2 Linux Security Configuration

85 min

This module covers essential security practices for Linux systems, including SSH configuration, key-based authentication, and firewall management using ufw.

LESSONS

Linux Security Fundamentals

LAB EXERCISES

Lab: Secure Remote Access Configuration

AFTER COMPLETING THIS MODULE, YOU WILL BE ABLE TO

- Configure SSH service for secure remote access
- Implement key-based authentication for passwordless login
- Manage firewall rules using Uncomplicated Firewall (ufw)
- Apply security best practices for system access control

MODULE 3 Network Configuration and Troubleshooting

80 min

This module teaches fundamental networking concepts for Linux systems, including IP configuration, DNS settings, and connectivity troubleshooting using command-line tools.

LESSONS

Linux Networking Fundamentals

LAB EXERCISES

Lab: Network Configuration and Testing

AFTER COMPLETING THIS MODULE, YOU WILL BE ABLE TO

- Configure static IP addresses using netplan
- Manage DNS resolver settings
- Diagnose network connectivity issues using diagnostic tools
- Verify network service status and port availability

MODULE 4 System Resource Monitoring and Optimization

80 min

This module focuses on monitoring system performance, identifying resource bottlenecks, and optimizing system resources through process and disk management.

LESSONS

System Resource Management
Concepts

LAB EXERCISES

Lab: System Monitoring and Resource
Management

AFTER COMPLETING THIS MODULE, YOU WILL BE ABLE TO

- Monitor system resources using command-line utilities
- Identify and manage resource-intensive processes
- Analyze disk usage and optimize storage allocation
- Interpret system logs for performance troubleshooting

MODULE 5 Automation and Essential Administrative Tasks

85 min

This module covers task automation using cron, shell scripting basics, and essential administrative procedures that streamline daily Linux system management.

LESSONS

Automation Fundamentals

LAB EXERCISES

Lab: Task Automation and Scripting

AFTER COMPLETING THIS MODULE, YOU WILL BE ABLE TO

- Schedule automated tasks using cron and crontab
- Create basic shell scripts for administrative tasks
- Implement system maintenance procedures
- Execute routine administrative workflows efficiently