

Linux Engineer with DevOps

About Mastering Linux Engineer with DevOps

Mastering Linux Engineer with DevOps is a flagship program by OpenPath, powered by KV IT-Solutions Pvt. Ltd., offering **comprehensive, career-focused online training** in Linux, DevOps, and modern open-source technologies.

Specifically designed for **B.Tech, BCA, MCA, and Diploma students**, this program provides **hands-on experience with LIVE INDUSTRIAL PROJECTS**, ensuring learners acquire practical skills required to manage **enterprise-grade IT infrastructure, automation pipelines, and cloud-native deployments**.

Whether you are starting your IT career or aiming to upskill as a Linux & DevOps professional, this program equips you with **job-ready capabilities for real-world environments**, bridging the gap between theoretical knowledge and industry demands.

Pre-requisites

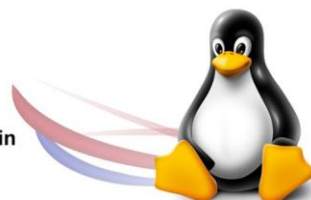
- Basic understanding of computer networking
- *A complimentary patch-up course is available for beginners*

Program Details

- **Duration:** 6 Months
- **Course Fee:** ₹50,000 (After Discount: ₹45,000)
- **Mode:** Hybrid (Online + Practical Labs)
- **Certification:** “*Mastering Linux Engineer with DevOps – Industry Ready Certification*” by OpenPath
- **Includes:** Hands-on labs, live industrial projects, and dedicated job support

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in



Linux Engineer with DevOps

Course Curriculum

Linux Concepts & Editors

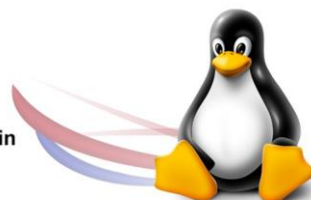
- Linux overview & open-source vs proprietary software
- Roles of a System Administrator and Linux Engineer
- Basic networking concepts
- Working with VI/VIM editors
- Installing VirtualBox, VMware & Oracle VM
- Installing Linux (CLI & GUI modes)

Directory Structure & Remote Connectivity

- Linux directory hierarchy explained
- Understanding root vs normal users
- File and directory creation & editing
- CLI vs Shell environment
- Remote tools: PuTTY, MobaXterm, VNC, RDP

Linux Boot Process

- BIOS/UEFI and GRUB overview
- Kernel loading and systemd
- Managing services with systemctl
- Rescue mode, single user mode



Linux Engineer with DevOps

- Recovering root passwords
- Configuring GRUB password security

Mounting File Systems

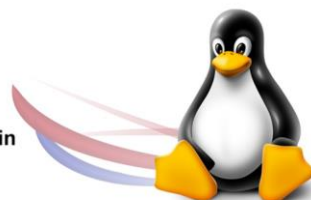
- Understanding mount points and filesystem types (ext2/3/4, xfs)
- Disk partitioning & formatting
- Manual vs persistent mounts via /etc/fstab
- Journaling, mount binding
- Disk tools & the lost+found directory

Linux Networking

- IP addressing, subnetting, gateway, DNS
- Static and dynamic IP configuration
- Network configuration files and routing tables
- Linux as a router
- Diagnostic tools: ping, netstat, ss, ip, nmcli, ifconfig

User Essentials

- Application vs system users
- Managing users and groups via /etc/passwd, /etc/shadow
- Commands: useradd, usermod, passwd, chage, userdel



Linux Engineer with DevOps

- File ownership and group control (chown, chmod)
- Setting login environments, user roles, default templates

Linux Permissions & Ownership

- Understanding user (u), group (g), others (o) permissions
- Octal notation and symbolic mode
- Setting default permissions using umask
- Special permissions: SUID, SGID, sticky bit
- ACLs, inodes, soft vs hard links

Job Scheduling

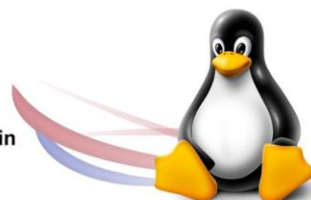
- Importance of automation in server environments
- Tools: at, cron, anacron, systemd-timers
- Scheduling backups and monitoring jobs
- Security in scheduling
- Practical use-cases: weekly/monthly tasks, reboot jobs

Essential Linux Commands

- Basic commands for file, user, and system management
- Advanced and monitoring commands: top, htop, ps, kill, lsof
- Package managers:
rpm,

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in



managers:
yum, dnf

Linux Engineer with DevOps

- Process & service management with systemd

NFS Server

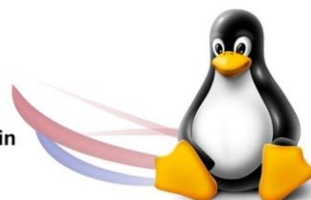
- NFS overview and use in Oracle environments
- Server and client configuration
- Exporting and accessing shared file systems
- Centralized storage implementation

LVM – Logical Volume Management

- Understanding LVM: PV, VG, LV
- LVM commands: pvcreate, vgcreate, lvcreate, lvresize
- Managing disk space flexibly using LVM structure

Telnet & FTP Server

- Telnet & FTP basics and configuration
- Encrypted vs unencrypted protocols
- vsftpd server configuration and user management
- Security, upload controls, logs, and control panel setup



Linux Engineer with DevOps

Proxy Server

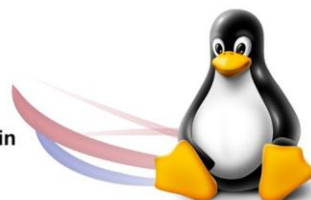
- Concept and benefits of using proxy servers
- Types: forward, reverse, transparent
- ACLs: filtering based on IP, MAC, username
- Security and content filtering
- Building a custom control panel for proxy management

DHCP Server

- DHCP fundamentals and working (DORA process)
- Dynamic vs static IP configuration
- MAC-based IP reservations
- DNS integration, control panel development

DNS Server

- DNS record types (A, AAAA, SOA, NS, CNAME, PTR, etc.)
- Setting up internal DNS and caching servers
- Master-slave configuration, DNS utilities
- SPF, DKIM, DMARC concepts and tools
- Domain registration and global DNS resolution



Linux Engineer with DevOps

Apache Web Server

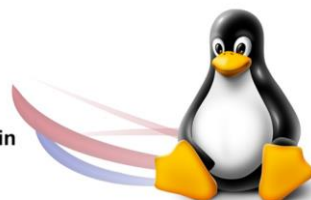
- HTTP vs HTTPS, virtual hosting
- SSL certificates and .htaccess security
- Auth modules and access control
- Web hosting techniques, Awstats integration
- Connecting Apache to MySQL/MariaDB

MySQL/MariaDB Server

- MySQL overview and architecture
- Database management with CLI and PhpMyAdmin
- Backup, restore, replication (master-master & master-slave)
- Optimizing and securing databases

Samba Server

- NetBIOS & CIFS concepts
- Samba 3.x for file sharing
- Samba 4.x as Active Directory replacement
- Group policies, RSAT tools, login scripts
- Cross-platform integration with Windows clients



Linux Engineer with DevOps

Mail Server Essentials

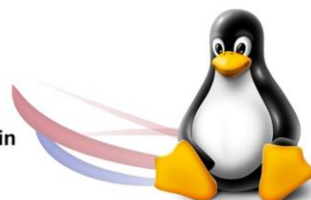
- Email concepts: MTA, MDA, MUA, SMTP-Auth, Relay
- Anti-spam & antivirus integration
- Mail routing, disclaimers, auto-responders
- DNS records: MX, SPF, DKIM, DMARC
- Header analysis, spam score, aliases, mail filters

Linux Security

- Importance of securing Linux servers
- IPTables, Firewallld, TCP Wrappers
- Server hardening tips (101 best practices)
- SELinux basics and SSH hardening
- Regular updates and kernel patches

WHM & cPanel Administration

- WHM vs cPanel overview
- Account management, packages, and feature lists
- WHM interface tour
- Managing domains, performance tuning
- Advanced tools: cron, Git, terminal



Linux Engineer with DevOps

Centralized Log Server

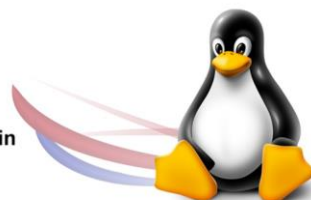
- Log file types, formats, and locations
- ELK stack: Elasticsearch, Logstash, Kibana
- Graylog introduction
- Centralized log forwarding and retention
- Compliance & security monitoring

Advanced Shell Scripting

- Script automation for enterprise systems
- Variables, functions, control structures
- Secure scripting practices
- Optimization and debugging
- Real-world scripting tasks

pfSense Firewall

- Introduction to pfSense as an enterprise firewall
- Installation & configuration
- NAT, firewall rules, VPN setup
- Logging, captive portal, DDNS integration



Zimbra / Carbonio Mail Server

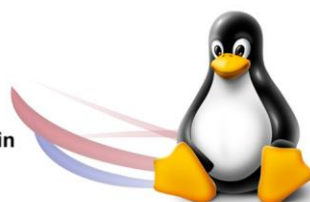
- Architecture: MTA, LDAP, Webmail
- Installation and domain configuration
- IMAP, POP, SMTP setup
- Backup & restore
- Performance monitoring and optimization

Samba 4 Domain Controller

- Active Directory implementation in Linux
- Domain configuration, replication, DNS
- Adding additional domain controllers
- Log analysis and advanced administration

Single Sign-On (SSO)

- SSO fundamentals and benefits
- PAM, NSS, Kerberos, LDAP integration
- AD/Samba/LDAP-based authentication
- Web-based SSO applications
- Best practices, tools, and utilities



Linux Engineer with DevOps

Amazon Web Services (AWS)

Build a rock-solid foundation in the most in-demand cloud platform.

- AWS Fundamentals & Core Services
- EC2, S3, IAM, RDS, Route 53, VPC
- Monitoring & Logging (CloudWatch, CloudTrail)
- DevOps & Automation Tools (CodeDeploy, CodePipeline)
- Serverless with Lambda & API Gateway
- Cost Optimization & Billing Insights
- AWS Security, Compliance, and Best Practices

Ansible - Configuration Management

Master Infrastructure as Code (IaC) with simplicity and power.

- What is Configuration Management?
- Ansible Architecture & Inventory Management
- Modules, AD-HOC Commands, and Playbooks
- Role-Based Automation
- Real-world use cases in enterprise deployments

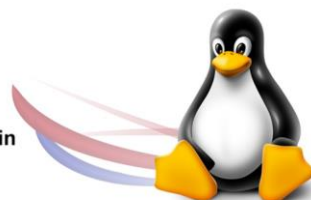
Terraform - Infrastructure Provisioning

Learn how to **automate and scale infrastructure** across cloud providers.

- Terraform vs Ansible (Declarative vs Procedural)
- Terraform Workflow & Architecture
- Configuration Files, Variables, and State Management
- Managing Resources Across AWS, Azure, GCP
- Hands-Multi-

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in



on Project:
tier

Linux Engineer with DevOps

Application Deployment

Docker - Containerization

Package your applications like a pro.

- Containers vs Virtual Machines
- Docker CLI, Images, and Containers
- Dockerfiles & Building Custom Images
- Volumes, Storage Drivers, Port Binding
- Docker Compose for Multi-Container Apps
- Real-world Lab: Deploy and Scale Apps with Docker

Kubernetes - Container Orchestration

Orchestrate your containers like the big leagues.

- Kubernetes Architecture & Cluster Components
- Pods, ReplicaSets, Deployments, DaemonSets
- Services, Ingress, ConfigMaps, and Secrets
- Persistent Volumes & Stateful Applications
- Scaling & Rolling Updates
- Use Case: High-Availability App Deployment

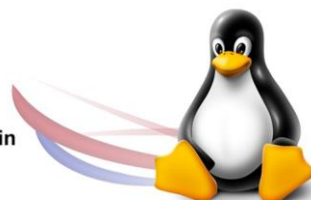
Nagios - Monitoring & Alerts

Stay on top of your infrastructure.

- Importance of Continuous Monitoring
- Nagios Architecture & Key Components

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in



Linux Engineer with DevOps

- Installation & Configuration
- NRPE Plugins and Notifications
- Creating Custom Alerts for Critical Events

ELK Stack (Elastic, Logstash, Kibana)

Unlock insights from your logs.

- ELK Overview & Real-world Use Cases
- Installing and Configuring Elasticsearch, Logstash, and Kibana
- Centralized Logging with Filebeat & Rsyslog
- Visualizing Server Metrics in Kibana
- Integration with Mail Servers (Zimbra)
- Custom Dashboards for Performance Analysis

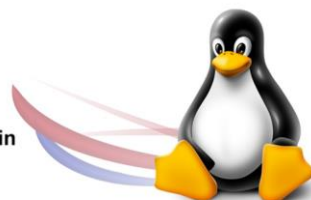
Git - Version Control Essentials

Track, manage, and collaborate on code efficiently.

- Understanding Version Control
- Git Workflow, Commits, and Branching
- Working with Local & Remote Repositories (GitHub/GitLab)
- Webhook Management & Token Authentication
- Collaboration in a Team Environment
- Hands-on: Git in CI/CD Pipelines

Jenkins - CI/CD Automation

Automate your build and deployment workflows.



Linux Engineer with DevOps

- Jenkins Overview & Architecture
- CI vs CD – Understanding the DevOps Lifecycle
- Jenkins with Docker – Scalable Deployments
- Installing and Managing Plugins
- Declarative Pipelines & Delivery Pipelines
- Hands-on Lab: Build → Test → Deploy with Git & Jenkins

📖 What You Will Achieve

By the end of this course, you will:

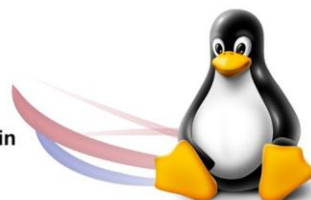
- ✓ Understand core DevOps concepts and tools
- ✓ Build and manage cloud-native infrastructure
- ✓ Automate deployments using modern CI/CD tools
- ✓ Monitor and secure your infrastructure proactively
- ✓ Be job-ready for roles like **DevOps Engineer**, **Cloud Automation Specialist**, or **Infrastructure Engineer**

📖 Includes

- Live industrial projects
- Practical labs and real-time use cases
- Dedicated job assistance and interview prep

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in



Linux Engineer with DevOps

Learning Outcomes

Upon completing this program, you will:

- ✓ Master enterprise-level Linux administration and DevOps workflows
- ✓ Build, deploy, and manage cloud-native infrastructure
- ✓ Automate deployments using modern CI/CD pipelines
- ✓ Monitor, secure, and optimize IT infrastructure proactively
- ✓ Be job-ready for roles like **Linux Engineer, DevOps Engineer, Cloud Automation Specialist, or Infrastructure Consultant**

Mr. Vikas Debnath

Founder Director, KV IT-Solutions Pvt. Ltd.

Founder, OPEN PATH

He believes that "Linux is for everyone" — and with the right guidance, anyone can master it.

205, Red Rose Building
Near Eros Corporate Tower
49-50, Nehru Place
New Delhi -110019

M : 98100-28374
E : kvit@kvit.in
W : www.linuxsolutions.org.in

