

About Mastering Linux

Mastering Linux is a flagship initiative by **OpenPath**, in association with **KV IT-Solutions Pvt. Ltd.**, offering comprehensive and affordable online training in **Linux Operating Systems** and a wide range of **Open-Source Technologies**.

The program is designed specifically for **B.Tech, BCA, MCA, and Diploma students** who aspire to build strong careers in IT infrastructure, system administration, or DevOps. Our curriculum focuses on **hands-on learning** through **LIVE INDUSTRIAL PROJECTS**, enabling participants to gain **real-world skills** essential for today's enterprise environments.

Whether you're a beginner or an aspiring Linux professional, *Mastering Linux* equips you with the expertise to deploy, manage, and secure enterprise-grade Linux servers confidently.

Key Highlights

- Comprehensive coverage of Linux system administration and server deployment
- Hands-on experience with 20+ enterprise-grade services (DNS, Apache, MySQL, Samba, Firewall, etc.)
- Industry-oriented projects and real-time practical labs
- Job-ready training for roles such as Linux Engineer, System Administrator, and DevOps Professional
- Mentorship by industry expert Mr. Vikas Debnath – Founder & Director, *KV IT-Solutions Pvt. Ltd.* and *OpenPath*



📖 Program Details

- Duration: 3 Months
- Course Fee: ₹30,000 (After Discount ₹25,000)
- Mode: Hybrid (Online + Practical Labs)
- Certification: “Mastering Linux – Industry Ready Certification” by OpenPath

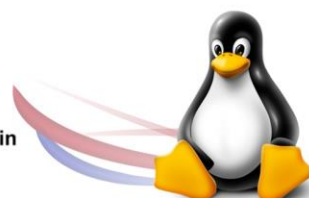
Course Curriculum

Linux Concepts & Editors

- ⑩ Linux overview & open-source vs proprietary software
- ⑩ Roles of a System Administrator and Linux Engineer
- ⑩ Basic networking concepts
- ⑩ Working with VI/VIM editors
- ⑩ Installing VirtualBox, VMware & Oracle VM
- ⑩ Installing Linux (CLI & GUI modes)

Directory Structure & Remote Connectivity

- ⑩ Linux directory hierarchy explained
- ⑩ Understanding root vs normal users
- ⑩ File and directory creation & editing



Linux Engineer

- ⑩ CLI vs Shell environment
- ⑩ Remote tools: PuTTY, MobaXterm, VNC, RDP

Linux Boot Process

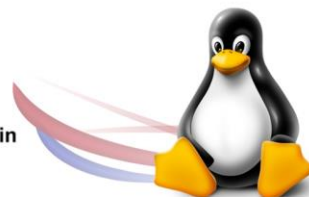
- ⑩ BIOS/UEFI and GRUB overview
- ⑩ Kernel loading and systemd
 - Managing services with systemctl
- ⑩ Rescue mode, single user mode
- ⑩ Recovering root passwords
- ⑩ Configuring GRUB password security

Mounting File Systems

- ⑩ Understanding mount points and filesystem types (ext2/3/4, xfs)
- ⑩ Disk partitioning & formatting
 - Manual vs persistent mounts via /etc/fstab
- ⑩ Journaling, mount binding
- ⑩ Disk tools & the lost+found directory

Linux Networking

- ⑩ IP addressing, subnetting, gateway, DNS
- ⑩ Static and dynamic IP configuration



Linux Engineer

- ⑩ Network configuration files and routing tables
- ⑩ Linux as a router
- Diagnostic tools: ping, netstat, ss, ip, nmcli, ifconfig

User Essentials

- ⑩ Application vs system users
- Managing users and groups via /etc/passwd, /etc/shadow
- Commands: useradd, usermod, passwd, chage, userdel
- File ownership and group control (chown, chmod)
- ⑩ Setting login environments, user roles, default templates

Linux Permissions & Ownership

- ⑩ Understanding user (u), group (g), others (o) permissions
- ⑩ Octal notation and symbolic mode
- Setting default permissions using umask
- ⑩ Special permissions: SUID, SGID, sticky bit
- ⑩ ACLs, inodes, soft vs hard links

Job Scheduling

- ⑩ Importance of automation in server environments
- Tools:

at, cron,
anacron,



Linux Engineer

systemd-timers

- ⑩ Scheduling backups and monitoring jobs
- ⑩ Security in scheduling
- ⑩ Practical use-cases: weekly/monthly tasks, reboot jobs

Essential Linux Commands

- ⑩ Basic commands for file, user, and system management
- Advanced and monitoring commands: top, htop, ps, kill, lsof
- Package managers: rpm, yum, dnf
- Process & service management with systemd

NFS Server

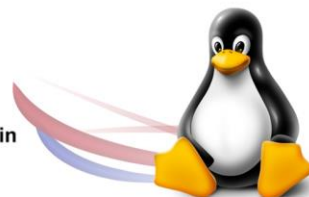
- ⑩ NFS overview and use in Oracle environments
- ⑩ Server and client configuration
- ⑩ Exporting and accessing shared file systems
- ⑩ Centralized storage implementation

LVM – Logical Volume Management

- ⑩ Understanding LVM: PV, VG, LV
- LVM commands: pvcreate, vgcreate, lvcreate, lvresize
- ⑩ Managing disk space flexibly using LVM structure

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Telnet & FTP Server

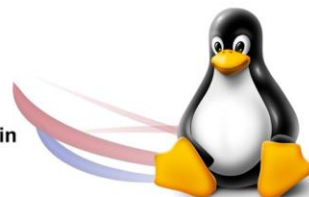
- ⑩ Telnet & FTP basics and configuration
- ⑩ Encrypted vs unencrypted protocols
 - vsftpd server configuration and user management
- ⑩ Security, upload controls, logs, and control panel setup

Proxy Server

- ⑩ Concept and benefits of using proxy servers
- ⑩ Types: forward, reverse, transparent
- ⑩ ACLs: filtering based on IP, MAC, username
- ⑩ Security and content filtering
- ⑩ Building a custom control panel for proxy management

DHCP Server

- ⑩ DHCP fundamentals and working (DORA process)
- ⑩ Dynamic vs static IP configuration
- ⑩ MAC-based IP reservations
- ⑩ DNS integration, control panel development



DNS Server

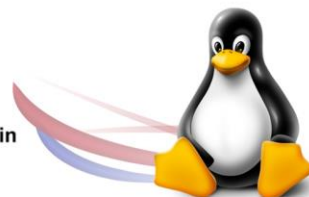
- ⑩ DNS record types (A, AAAA, SOA, NS, CNAME, PTR, etc.)
- ⑩ Setting up internal DNS and caching servers
- ⑩ Master-slave configuration, DNS utilities
- ⑩ SPF, DKIM, DMARC concepts and tools
- ⑩ Domain registration and global DNS resolution

Apache Web Server

- ⑩ HTTP vs HTTPS, virtual hosting
 - SSL certificates and .htaccess security
- ⑩ Auth modules and access control
- ⑩ Web hosting techniques, Awstats integration
- ⑩ Connecting Apache to MySQL/MariaDB

MySQL/MariaDB Server

- ⑩ MySQL overview and architecture
- ⑩ Database management with CLI and PhpMyAdmin
- ⑩ Backup, restore, replication (master-master & master-slave)
- ⑩ Optimizing and securing databases



Samba Server

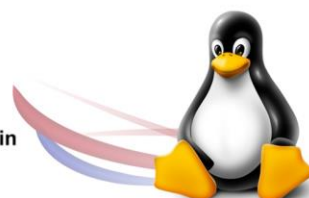
- ⑩ NetBIOS & CIFS concepts
- ⑩ Samba 3.x for file sharing
- ⑩ Samba 4.x as Active Directory replacement
- ⑩ Group policies, RSAT tools, login scripts
- ⑩ Cross-platform integration with Windows clients

Mail Server Essentials

- ⑩ Email concepts: MTA, MDA, MUA, SMTP-Auth, Relay
- ⑩ Anti-spam & antivirus integration
- ⑩ Mail routing, disclaimers, auto-responders
- ⑩ DNS records: MX, SPF, DKIM, DMARC
- ⑩ Header analysis, spam score, aliases, mail filters

Linux Security

- ⑩ Importance of securing Linux servers
- ⑩ IPTables, FirewallD, TCP Wrappers
- ⑩ Server hardening tips (101 best practices)
- ⑩ SELinux basics and SSH hardening
- ⑩ Regular updates and kernel patches



WHM & cPanel Administration

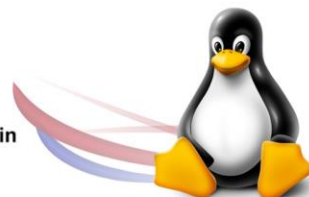
- ⑩ WHM vs cPanel overview
- ⑩ Account management, packages, and feature lists
- ⑩ WHM interface tour
- ⑩ Managing domains, performance tuning
- ⑩ Advanced tools: cron, Git, terminal

Centralized Log Server

- ⑩ Log file types, formats, and locations
- ⑩ ELK stack: Elasticsearch, Logstash, Kibana
- ⑩ Graylog introduction
- ⑩ Centralized log forwarding and retention
- ⑩ Compliance & security monitoring

Advanced Shell Scripting

- ⑩ Script automation for enterprise systems
- ⑩ Variables, functions, control structures
- ⑩ Secure scripting practices
- ⑩ Optimization and debugging
- ⑩ Real-world scripting tasks



pfSense Firewall

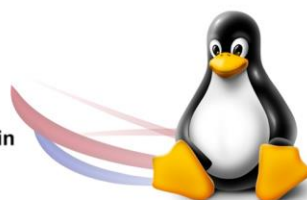
- ⑩ Introduction to pfSense as an enterprise firewall
- ⑩ Installation & configuration
- ⑩ NAT, firewall rules, VPN setup
- ⑩ Logging, captive portal, DDNS integration

Zimbra / Carbonio Mail Server

- ⑩ Architecture: MTA, LDAP, Webmail
- ⑩ Installation and domain configuration
- ⑩ IMAP, POP, SMTP setup
- ⑩ Backup & restore
- ⑩ Performance monitoring and optimization

Samba 4 Domain Controller

- ⑩ Active Directory implementation in Linux
- ⑩ Domain configuration, replication, DNS
- ⑩ Adding additional domain controllers
- ⑩ Log analysis and advanced administration



Single Sign-On (SSO)

- ⑩ SSO fundamentals and benefits
- ⑩ PAM, NSS, Kerberos, LDAP integration
- ⑩ AD/Samba/LDAP-based authentication
- ⑩ Web-based SSO applications
- ⑩ Best practices, tools, and utilities

? Learning Outcomes

By completing this course, you will:

- ⑩ Master enterprise-level Linux administration
- ⑩ Gain practical experience with over 20 real-world servers & services
- Be job-ready for roles such as **Linux Engineer, System Administrator, Infrastructure Consultant, or DevOps Professional**
- ? Includes: Hands-on labs + Industry projects + Job support

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.

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