

LINUX LPI-201 CERTIFICATION COURSE



The **Linux LPI-201 Course** is part one of an exam syllabus designed to lead to LPIC-2 Advanced Level Administration certification.

Linux Professional Institute (LPI) promote and certify essential skills on Linux and Open Source technologies through the global delivery of comprehensive, top quality, vendor-independent exams.

The **LPI certification** program is arranged into three main levels by job tasks. Distance Learning Centre offers LPI Approved Training Material for the LPIC-1 (Level 1) and LPIC-2 (Level 2) certifications.

Open-source operating systems, most notably Linux, are rapidly gaining ground on more popular proprietary software. Much of this success is due to the efforts of the Linux Professional Institute (LPI).

Besides promoting the use of Linux-based, open-source and free software, LPI seeks to advance the skills of professionals who use these systems through its LPI certification program.

The LPI Certification Program is:

- Designed by a community of Linux professionals, volunteers, vendors and educators.
- Challenging: if you don't know the subjects you won't pass.
- Accessible and available at thousands of test centres around the world or at special events.
- Of high quality: relying on critical input from numerous Linux experts and employing scientific and industry-recognized psychometric processes.
- Distribution-neutral: verifying knowledge on any standard Linux system.
- Relevant: surveying thousands to determine the skills that need to be tested.
- Training-vendor independent: encouraging a variety of methods and approaches to test preparation.
- Supported and sponsored by a large number of Linux companies and projects.
- A certification the Linux community can respect and be proud of.

➤ **Linux LPI-201 Course Book:**

The course book covers the following Units:

• **Unit One – Introduction**

The following topics are covered: Course Format; Product Development; Structure; Objectives; Conventions; Introduction to Labs; Introduction to Lab Solutions; and Lab Conventions.

• **Unit Two – The Linux Kernel**

The following topics are covered: Kernel Terminology; The Kernel; Kernel Version Numbering; Obtaining the Kernel Source; Kernel Modules; Module Configuration Files; modules.conf; modules.dep; Kernel Module Utilities; depmod; insmod; lsmod; modinfo; modprobe; rmmod; Kernel Types: Monolithic Vs. Modular; Kernel Dependencies; Compiling and Updating a Kernel; Unpacking, Configuring, and Compiling a Kernel; Unpacking the Kernel Source; Kernel Documentation; Configuring a Kernel; Compiling the Kernel and Modules; Reviewing the install.sh Script; Patching a Linux Kernel; Patches; The patch Command; Patching the Kernel; Removing a Kernel Patch; Tuning Kernel Parameters; Tunable Kernel Parameters; IO Scheduling; Read Ahead; Swapiness; Troubleshooting Kernel Errors; and VFS Panic.

Price:
£275.00

Instalment Options:

You can spread the payments for this course over 4 monthly payments. 1 initial payment of £110.00, followed by 3 monthly payments of £55.00.

Course Format:
Linux LPI Course Book

Assessment:
Linux Professional Institute
LPI-201 Examination

Approximate Study Time:
120 Hours of Self Study

- **Unit Three – Hardware Management**

The following topics are covered: Devices and Drivers; How Are Device Drivers Loaded; Hard Drives; Using hdparm to Configure a Disk; Configuring Terminal Devices; Terminal Connection; Configuring the Host; getty; stty & setserial; setserial; Configuring Serial Ports; Configuring Multi-Port Cards; sty; Serial UPS Devices; System Configuration; The powerd Daemon; Configuring powerd; powerd States; Configuring Monitors; LCD Monitors; Utilities; Hardware Utilities; lsdev; lspci; Latency Timers; USBView; /proc and procinfo; PCMCIA Utilities; cardmgr; The /var/lib/pcmcia/stab File; and cardctl.

- **Unit Four – Linux System Start-up**

The following topics are covered: Identifying Linux Boot Stages; Boot Options; Runlevels; Boot Stages; Stage I: BIOS; BIOS Boot Stages; Stage II: Boot Loader; Boot Loaders: LILO and GRUB; LILO; The LILO Boot Process; GRUB; The Grub Boot Process; Boot Loader Stages; Stage III: Kernel; The RAM Disk; nash; Kernel Stages; Stage IV: init; Runlevel Scripts; Debian Machines and Booting; Troubleshooting LILO; LILO Boot Messages; Map Installer Errors and Warnings; Fatal Errors; Warnings; Disk Error Codes; Hex-Error Codes; Miscellaneous Problems; Restoring the MBR with LILO Files; Removing LILO; Removing LILO via DOS; Customizing Startup and Boot; Processes; inittab; inittab Fields; Initial RAM Disks; Making an initrd Image; mkinitrd; Using Custom Boot Scripts; Recovering From a Lost Root; and Password.

- **Unit Five – Configuring and Maintaining a Linux File System**

The following topics are covered: File Systems; Creating a File System; Mounting and Unmounting Devices and File Systems; Mount Files; Automounting; Swap File Systems; File System Utilities; fsck; Options for File System-Specific; Checkers; tune2fs; badblocks; dumpe2fs; debugfs; Building Packages; Debian Packages; Required Files; The control File; The copyright File; The changelog File; The rules File; Building the Package; RPM Packages; The Build Tree; The spec File; The Header Section; The %prep Section; The %build Section; The %install Section; The %clean Section; The %files Section; The %changelog Section; Test Building; Generating the File List; Building the Package with rpmbuild; and Testing It.

- **Unit Six – RAID & LVM**

The following topics are covered: RAID Basics; Limitations of RAID; RAID Levels; RAID 0; RAID 1; RAID 4; RAID 5; RAID 1+0 (10); RAID 5+0 (50) and 5+1 (51); RAID Summary; Designing RAID Sets; RAID Operations; Software and Hardware RAID; Linux Software RAID; The /etc/raidtab File; Persistent Superblocks; The mkraid Utility; Configuring Software RAID; Booting with Software RAID; Linux Hardware RAID; Linux LVM; The Problem that LVM Addresses; Alternatives to LVM; Logical Volume Management; LVM Terminology; LVM Utilities; vgscan; pvcreate; vgcreate; vgextend; vgsdisplay; lvcreate; lvextend; and Creating a Partition Using LVM.

- **Unit Seven – File Sharing and Services - NFS**

The following topics are covered: Introduction to NFS; Prerequisites; How NFS Works; What Needs To Be Configured On A NFS Server; Choosing Your Exports; Configuring /etc/exports; Restricting Access; User ID Mapping; Starting NFS; Server Side Options; Temporarily Exporting A Directory; Mounting Exported Directories; Automatically; The Soft Touch; Hard Mounting; Soft Mounting; Signal Handling; intr (Interruptible); Block Size; Monitoring the NFS Server; Defense; and Secure NFS with TCP wrappers.

- **Unit Eight – File Sharing and Services - Samba**

The following topics are covered: Upgrading Samba; Configuration Files; Encrypted Password File; (smbpasswd); Optional Items (Log Files and Startup Scripts); Common Locations; The smb.conf File; Sharing Directories; Creating a Simple Disk Share; Case Sensitivity and Name Mangling; Restricting Access; [homes]; Enabling smbfs Support; Building smbmount and smbmount Tools; Sharing Printers; How Does SMB Printing Work?; Samba's Printing Styles; Initial Print Share Creation; Controlling a Printer From Remote Clients; Printer Service Troubleshooting; Download Print Drivers to Windows 9x Clients; The [printer\$] Disk Share; The [print\$] Share Directory; Installing Drivers into [print\$]; Add Printer Wizard Driver; Installation; Installing Print Drivers Using; rpcclient; Identifying the Driver Files; Obtaining Driver Files from Windows Client [print\$] Shares; Installing Driver Files into [print\$]; Using the smbclient to Confirm Driver Installation; Running rpcclient with adddriver; Checking adddriver Completion; Check Samba for Driver; Recognition; Specific Driver Name Flexibility; Running rpcclient with setdriver; First Client Driver Installation; Setting Device Modes on New Printers; Modify smb.conf; [printers]; Network Browsing and

WINS Browsing 101; Collect the Browse List; Request a Copy of the Browse List; Browser Elections; Browsing 102; LMHOSTS File; Windows Internet Name Service; (WINS); Samba's WINS Capabilities; Cross Subnet Browsing; Microsoft Clients; Windows 95 and 98; Network Components; Network Redirectors and Password Issues; Remote Disk Share Connection; Remote Printer Connection; Support for Windows 9x Domain logins and logon scripts; Windows NT 4.0 Passwords and Service Pack 3; Disk Share Connections; Remote Printers Connections; Credential Conflicts; Windows 2000; and Microsoft DOS Network Client 3.0.

- **Unit Nine – Recovering a Linux System**

The following topics are covered: Developing an Onsite and Offsite; Backup Strategy; Data Classifications; Ephemeral; Local General System; Choosing a Backup Method; Backup Media; Magnetic Media; Backup Utilities; tar; cpio; rsync; dd; mt; Automate Backups With Cron; System Recovery; Passing Parameters To The Kernel; Device Does Not Work; Lost root Password; Journal Checking with fsck; Creating a Boot Disk; Installing LILO on a Floppy; Creating A Data CD; Creating the CD Filesystem; Testing .iso Images; Burning the CD; and Duplicating Data CDs.

- **Unit Ten – System Logging & Automation**

The following topics are covered: System Logging; The syslogd Utility; Signals; Remote Logging; Security; The syslog.conf File; Selectors; Actions; Compressed Log Files; Automounting with autofs; autofs; and The autofs Map: /etc/auto.master.

- **Unit Eleven – Troubleshooting**

The following topics are covered: General Troubleshooting; Packages, Programs, and Scripts; Permissions; File System Issues — Disk Space and Mounting; BIOS Issues; Recognizing and Identifying Boot and Kernel Specific Stages; The Operating System; What Sort of "It Doesn't Work" Does it Do?; Hardware vs. Software Problems; Environment Configurations; /etc/shadow; /etc/group; /etc/profile; and /etc/login.defs.

Pre-Requirements:

Students should have completed the LPI-1 Certification. Students should be able to: Administer a small to medium-sized site; Plan, implement, maintain, keep consistent, secure, and troubleshoot a small mixed (MS, Linux) network, including a: LAN server (samba) Internet Gateway (firewall, proxy, mail, news) Internet Server (webserver, FTP server) Supervise assistants; and Advise management on automation and purchases.

Course Duration & Support:

Students may register at any time. The courses are designed as self-study courses but if you have any problems you can email our email support. As the course is self study you can complete in as little or as long a time as you prefer, and we do not impose a cut-off date for study.

Assessment:

Assessment is from the Linux LPI-202 Examination. Examinations are 120 minutes in length each and have 60 questions in multiple choice/multiple answer format. The Exam is graded on a scale of 200 - 800 with a minimum passing score of 500.

Qualification:

On Completion of the Linux LPI-201 Course, you can apply for your **internationally recognised Linux Professional Institute LPI-201 Examination**.

Examinations must be sat at a registered Prometric or Pearson VUE testing centre and are currently £120.00 + VAT each. You can locate testing centres and schedule appointments on their Websites:



Prometric website – <http://www.prometric.com/>

Pearson VUE - <http://pearsonvue.com/>