Course Outline

LPI 101

Duration: 5 days (30 hours)

Learning Objectives:

- Everything you need to know to prepare for the LPI 101 exam
- All the key core elements of the Linux operating system installation, file system, RPMs, network configuration, backup, restore, X Window, Kernel configuration, application management
- The care Internet related technologies- e-mail, security, DNS, Apache, Squid

Target Audience:

- Anyone interested in gaining a greater understanding of Linux
- Anyone responsible for providing basic installation, operation, and troubleshooting services on Linux workstations and servers
- Microsoft professionals seeking to add Linux expertise

Prerequisites:

No Prerequisites

Topics Covered:

- Linux Fundamentals
  - Objectives
  - What is Linux
  - The Story of Linux
  - The Free Software Model
  - Linux Features
  - Loadable Device Modules
  - GUI Window Managers
  - Programming Languages
  - Linux Advantages
  - GUI is Not Necessary
  - Remote Administration is Easy
  - Rebooting is Uncommon
  - Viruses are Rare
  - Linux Limitations
  - Linux Distribution Mechanism
  - Linux Standards
  - FHS and LSB
  - Linux Documentation

- The Linux Documentation Project
- System Administration
- Operational vs. Administrative
- Labs & Self-Directed Exercises

➢ Installing a Linux System
- Objectives
- Installation Options
- Getting Ready- System Type
- Types of Servers and Workstations
- Linux PRE-Installation
- Creating a Boot Floppy
- Drive Partitions
- Preparing Your System to Dual-Boot
- Partition the Drive
- Other Partitioning Methods
- Linux Boot Loaders
- X Window System Installation
- System Initialization
- Boot Sequence- Init and / etc/inittab
- Labs & Self-Directed Exercises

➢ Linux Usage
- Objectives
- Command Line Basics
- Common Commands
- File System Basics
- The Linux File System
- Navigating the Directory Tree
- Permissions
- Copying, Moving & Removing Files
- Creating, and Deleting Directories
- Interpreting Files
- Linux Text Editors
- Basic vi
- Vi Modes
- The Linux Shell
- Profiles
- Environment
- Using the bash Shell
- Redirecting Input and Output
- Background Jobs

- Bash Scripting
- Labs & Self-Directed Exercises

➢ Linux System Background
- Objectives
- Hardware and Architecture
- System Resources
- IRQ
- I/O Addresses
- DMA
- Devices and Drivers
- Hard Drives
- Network Interface Controllers
- Adding RAM
- Modems
- Audio Controllers
- The Linux File System
- Which File System is Best?
- File System Structure
- Directory Hierarchy
- File-related Commands
- Windows NT-and Linux File Permissions
- Permissions and Ownership in a GUI
- Mounting File Systems
- Managing Shared Libraries
- Process Management
- The /proc File System
- Labs & Self-Directed Exercises

➢ Administration Utilities
- Objectives
- Online Documentation
- man Pages
- Manual Entries
- Linux Documentation Project
- System Information
- Identifying the System
- System Default Files
- Identifying and Communicating with Active Users
- Finding Files
- The Find Command
- The Locate Command

- Locating Commands
- Interpreting Files
- Text Processing
- The grep Family
- Regular Expressions
- Filters
- Sed
- Labs & Self-Directed Exercises

➢ Files and Directories

- Objectives
- Standard Directories
- Linux File System
- Long Directory Listing
- Access Control
- File and Directory Permission
- File Manipulation Permissions
- Set User and Group lds
- The Sticky Bit
- File Permission Commands
- Links
- Hard Link
- Symbolic Link
- Labs

➢ Processes

- Objectives
- Processes
- The Linux Kernel
- Programs and Processes
- Daemons and Zombies
- Key Attributes of a Process
- Running Processes
- Checking on Processes
- The /proc File System
- Signals
- Sending Signals
- Intercepting Signals
- Scheduling Processes
- The at Command
- Listing and Deleting at Jobs
- The crontab Command

- Administering at and crontab
- Labs & Self-Directed Exercises

➢ System Startup and Shutdown
- Objectives
- Standard Boot Process
- Typical lilo.conf
- Boot Problems
- Manual Boot
- Startup Flow Control
- Run Levels
- The init Control File: /etc/inittab
- Run Command Scripts (System V)
- rc Script Details (System V)
- Changing Run Levels
- Shutting Down
- Maintenance Mode
- Labs

➢ Managing Users
- Objectives
- Creating New User Accounts
- New User Requirements
- Preparing Groups
- The /etc/passwd File
- Allocating User IDs
- Adding/Removing Users
- Changing User Attributes
- Changing Group Membership
- Security
- Setting Passwords
- Choosing Passwords
- The /etc/Shadow File
- Account Security
- Labs

➢ User Environments
- Objectives
- Login Shell
- Restricted root Access
- Environment Files
- Environment Definitions
- The unmask Command

- Security Issues
- Message of the Day (motd)
- Guest Accounts
- Shared Accounts
- Shared Group Directories
- Labs

➢ File Systems
- Objectives
- File System Structure
- File System Types
- Making a File System
- Mounting a File System
- Kernel File Cache
- The lost+found Directory
- Corrupt File Systems
- Identifying Lost Files
- File System Configuration File
- Utilities
- Free Disk
- Disk Usage
- Quota
- User Disk Quota
- Getting a Report on a User's Quota Status
- Turning on Quota at Boot Time
- Maintaining Quota
- Labs & Self-Directed Exercises

➢ Backup and Restore
- Objectives
- Why Perform Backups
- When to Backup
- Where to Store Backups
- What to Backup
- Backup Media
- Magnetic Tape
- Optical Disks
- Removable Disks
- Backup Utilities

➢ Linux Backup Terminology
- Tape Archive and Restore
- Copy to I/O

- Using cpio
- Direct Device Access
- Using dd to identify a File Type
- Using Compression and dd
- Handling Tapes with mt
- Linux Tape Device Names
- Working with MS-DOS Diskettes
- Network Backups
- Labs & Self-Directed Exercises

➢ Security, Monitoring, and Troubleshooting

- Objectives
- Your Role in Security
- Physical Security
- Software Security
- Exploits
- Security Tools
- Basic NFS Security
- Security and NFS
- Client Security
- X Windows Security
- Monitoring System Performance
- What to Monitor
- CPU Process Reporter (top)
- Monitoring Memory Usage
- Virtual Memory Usage
- /proc/ meminfo
- Other Utilities
- Monitoring Log Files
- Inspecting Log Files
- Remote Logging
- Troubleshooting
- Preparing for Trouble
- Potential Installation Problems
- LILO Error Messages
- Printing Troubleshooting
- Repairing File Systems
- Mail System Maintenance
- Emergency Booting
- Hardware vs. IRQ Problems
- Problems with SCSI Controllers and Devices

- Setting Your System's Clock
- Troubleshooting Routing Issues
- Labs

LEBANON
Beirut, Sodeco Square
+961 1 611 111
info@formatech.com.lb

U.A.E
Dubai, Knowledge Village
+971 43695391
info@formatech.ae