

**Price:** R7,800.00 excl. VAT  
**Duration:** 4.5 days  
**Code:** LINXF

## Linux Fundamentals

### Description

Linux is the most popular operating system for web servers, and is a very powerful and flexible system. This course will introduce you to the fundamentals of the Linux operating system. It covers topics from installation and system architecture to scripting languages and the principles of Linux programming.

### Objectives

After you have completed the Linux Fundamentals course, you will be able to:

- Install Linux.
- Configure and administer a Linux system for everyday use.
- Troubleshoot hardware and software issues.
- Understand and use command line shells.
- Perform basic bash shell scripting.
- Create and compile programs (mainly in C).

### Intended Audience

You should attend the Linux Fundamentals course if:

- You are a programmer and you want to program on Linux.
- You want to be able to understand and use the Linux operating system.
- You want to be able to write and run scripts on the Linux operating system.

### Prerequisites

Before you attend the Linux Fundamentals course:

- You should have some experience, even if limited, using a command line interface and a text editor.
- You will find it useful to have some C programming experience. It is not essential for this course, but it is a good idea to add our Standard C Programming course to your training program.

### Course Contents

#### **Introduction**

- Unix & Linux history.
- Basic principles.
- Terminology.
- Hardware principles.
- Networking hardware.
- PC hard disk structure.
- CD-ROMs & DVDs.

#### **Installation Principles**

- Distribution types.
- Planning, Preparation, Formatting.
- Boot managers & dual-booting.
- Application & daemons.
- Dependencies & Package managers.

### ***System Architecture***

- Kernel.
- Device drivers.
- Hardware discovery.
- Plug and Play.
- Bootup process.
- File systems.
- Linux Standard Base (LSB) and Linux Filesystem Standard (LFS).
- Login shells.
- X-Windows.
- Xorg.
- Window managers.
- Remote X.
- Run levels.

### ***Shells and Usage***

- Shell concepts & versions.
- Root.
- Homes.
- Bash.
- Environment.
- Finding help.
- Command line.
- File & directory manipulation.
- Editors.
- Standard Input / Output / Error.
- Pipes; Redirection.
- Hard & symbolic links.
- Archiving & compression.

### ***Configuration and Administration***

- Conventions.
- Users, groups, passwords, permissions.
- Networking.
- Daemons.
- Processes.
- Monitoring.
- Log files.
- Runtime information.
- NFS, Samba.
- FTP; Telnet.
- Secure Sockets Layer (SSL).
- Remote login.

### ***Scripting Languages***

- Shell scripts.
- Variables, expressions, operators, iteration, selection, functions, comments.
- File globbing.
- Regular expressions.
- I/O.
- Other scripting languages or scriptable tools: sed, awk, perl, python.
- Console control.

### ***Linux Programming Introduction***

- GCC (GNU compiler).
- Make files.
- Compiling.
- Debugging.
- AutoConf and AutoMake.
- Libraries.
- Kernel compilation.
- Processes & threads.
- Socket programming.
- X programming.
- GUI libraries: wxWidgets, QT and GTK.

*\*\* The lecturer reserves the right to modify the contents of the course to suit the needs of the delegates.*