

**Course Description:** This is the first course in a series of courses in the SuSE Linux Curriculum. This course places emphasis on Linux developers. Topics include: Linux principles, a detailed view of the file system, the vi editor, fundamental Linux commands including awk, sed, and grep, a detailed view of the bash shell including its function as a programming language, other programming languages such as C, and Perl, software tools such as make and rcs, and related system administration topics. The course is supplemented with many hands-on exercises that reinforce the lectures.

**Who Should Attend:** This course is intended for current Unix and Linux developers and those who wish to gain similar knowledge.

**Prerequisites:** Students are required to have some development experience.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Log in and out of the system.
- Navigate through file system.
- Manipulate files using the rich set of Linux utilities.
- Create and modify files using the 'vi' editor.
- Use the Linux shell for a wide variety of functions.
- Launch and control jobs.
- Use the rich set of software tools provided by Linux.
- Write non-trivial Perl scripts.
- Use the Linux command set to solve standard problems.
- Write non-trivial shell scripts.
- Understand simple C programs.
- Understand the role of the system administrator.

### Course Outline:

#### An Introduction

Brief UNIX History  
Linux + GNU  
Commercialization of Linux  
UNIX/Linux Timeline  
GNU, FSF, and the GPL  
Linux Advantages

#### Getting Started

Logging in to Linux  
Working in Linux  
The KDE Display  
Terminal Windows  
Konqueror  
KDE Applications  
Terminal Window Interface  
Shell Command Lines  
The man Command  
Linux Architecture

#### Directories

Filesystems  
Top Level Directories  
Home Directories  
Directory Commands  
The /etc/passwd File  
The /etc/group File  
The newgrp command  
The su Command  
File and Directory Permissions  
chmod  
umask

#### Shell Fundamentals

Shell Functionality  
Shell Variables  
The PATH Variable  
The Command Line  
Command History  
Command Substitution  
Filename Expansion Characters  
The Standard Output  
The Standard Error  
The Standard Input  
Pipes  
Aliases  
Functions  
Quoting  
Control Sequences  
Other Shell Features

#### File Manipulation Commands

cat  
ls  
cp  
mv  
ln  
rm  
wc  
find  
The cmp command  
Exit Values  
The vi Editor  
vi Commands

#### Linux Filters

Perspective  
grep  
sort  
head and tail  
tr  
cut  
od  
paste  
split  
uniq  
xargs  
sed  
awk  
more and less  
tee  
lp

#### Processes

What is a Process?  
Properties of a Process  
Process Creation  
ps  
Job Control  
Signals  
kill  
nohup

#### Shell Programming

Introduction  
Shell as a Programming Language  
An Example Shell Script  
Passing Arguments to Shell Scripts  
Relational Operators  
Making Decisions  
Logical Operators  
File Operators

Looping Constructs  
Arithmetic Calculations  
The test Command  
Altering Loop Control

#### Networking Applications

TCP/IP  
Client/Server Model  
Ports  
DNS  
NFS  
ping  
ftp  
telnet  
ssh

#### Software Tools

C Language and SuSE  
Simple C Programs  
Making Libraries  
Shared Libraries  
Compression Utilities  
The file Command  
make  
Revision Control  
CVS  
Other Languages

#### System Administration

Duties of the System Administrator  
Bringing Up the System  
Shutting Down the System  
Adding Users  
The /dev Directory  
The find Command  
Backing Up Files  
cpio  
tar  
Filesystem Commands - mount  
Filesystem Commands - df  
Filesystem Commands - du  
at and crontab  
Managing Software

#### A Tutorial Introduction to Perl

What is Perl?  
The First Perl Program  
Perl Variables  
IO in Perl  
Control Flow Constructs  
Control Flow Constructs - if

Control Flow Constructs - loops  
Statement Modifiers  
Altering Loop Control Flow - last  
Altering Loop Control Flow - redo  
Array Principles  
Array Functions  
Arrays and STDIN  
Associative Arrays  
The Special Built In Variable \$\_  
Regular Expressions  
Writing Your Own Functions