

**Course Description:** Linux has risen in popularity because it is Open Source technology. This means that customers are no longer locked into any one particular vendor's software. The rise in popularity of Linux has resulted in various Linux distributions. SuSE Linux is now capturing an increasing market share of Linux users. With legions of developers contributing to Linux, it is safe to assume that Linux is here to stay and that Linux will only continue to grow in popularity.

This course is divided between lectures and hands-on exercises. If you are taking this course in a classroom setting, rest assured that your instructor is not only a Linux expert, but is ready and willing to answer any and all of your classroom questions.

**Who Should Attend:** This course is intended for programmers, end users, managers, and future system administrators.

**Prerequisites:** Students are required to have some familiarity with an operating system such as DOS or Windows.

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

- Understand the relationship between UNIX and LINUX.
- Log in and out of the system.
- Use the various components of the GNOME desktop.
- Perform work using terminal shell windows.
- Navigate through the file system.
- Get help using the on-line manual.
- Use the rich set of LINUX file management utilities.
- Edit files using the 'vi' editor.
- Use network utilities including ftp and telnet.
- Use the bash shell for a wide variety of functions.
- Write fundamental bash scripts.
- Kill processing through knowledge of the process tree.
- Launch and control jobs.
- Understand the role of the system administrator.
- Use the robust set of software tools.
- Use the Nautilus graphical shell.
- Launch applications graphically.

### Course Outline:

#### An Introduction

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

#### Getting Started

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

#### The Linux Filesystem

Filesystems  
Top Level Directories  
Home Directories  
Directory Commands  
The /etc/passwd File  
The /etc/group File  
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 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

Shells  
Scripting Rationale  
Creating a bash Script  
bash Startup Files  
A Script's Environment  
Exporting Variables  
Exit Status  
Programming the Shell  
Parameter Passing  
Operators  
if  
Arithmetic  
Looping Constructs  
Input and Output  
Interrupts

#### Networking Applications

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

#### Software Tools

C Language and UNIX  
Creating Programs in C  
Creating a Library  
Using the Library  
Static vs. Shared Libraries  
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

#### Using the Graphical Environment

The X Window System  
A Picture of Several X Clients  
XFree86! and Xorg  
The GNOME Desktop Environment  
Window Managers  
Window Operations  
Nautilus  
The Linux File Manager  
A Graphical Depiction of Nautilus  
Launching Applications through Nautilus  
Office Applications

#### Mail Systems

Mail Systems  
mail Command  
mail Customization  
pine Command  
Features of pine  
Using pine  
Main Menu in pine  
Help in pine  
Compose Message in pine  
Message Index in pine  
Folder List in pine  
Address Book in pine  
Setup in pine