

## L-0\_Corp Linux CLI and Bash Shell Scripting

(c) *kaiwanTECH*. Click [here](#) to contact us.

|  |                                  |
|--|----------------------------------|
| <b>Duration: 3 days</b>  |                                  |
| <b>Pre-requisites</b>  |                                  |
| <b>Mandatory</b>   | <b>Preferable</b>                |
| Usage of a modern OS (Windows / *nix / Mac), at least one programming or scripting language.                   | Diploma / degree in B Sc / Engg. |
| <i>Below is the Outline TOC (Table Of Contents) document: it presents the (approximate) Day-wise Coverage.</i> |                                  |

### Day 1

#### **Part I : Introduction**

##### **Module 1 :: Introduction to the LINUX OS**

The Birth of Linux: Linus Torvalds' historic post  
Linux - A Descriptive note

Linux System Architecture

The various layers - the kernel, the shell, applications; philosophy of the LINUX OS

User and Kernel Modes

The GNU project and the GNU GPL license

#### **Part II : Linux Fundamentals – the CLI**

##### **Module 2 :: File System Concepts**

Filesystem Basics

Partitions

Filesystems

Mounting and Unmounting

Pathnames

Full Pathnames

Relative Pathnames

Changing Directories : The cd command

Listing Files

Using the ls Command with Options

Finding Files

The find Command Expressions

25+ examples of Linux find command – search files from command line

Viewing Files

cat. More, less  
Head and Tail

### **Module 3 :: File Management**

---

Creating files  
Creating directories  
File Permissions  
    Understanding the permission model  
    Changing permissions with chmod  
    Side effects  
Renaming files  
Copying Files  
Removing files & directories  
  
Linking Files  
    Concept  
    Directory Files & Inodes  
    Hard Links  
    Symbolic Links

### **Day 2**

### **Module 4 :: Redirecting, Filtering and Piping**

---

Introduction  
Redirecting Input & Output  
    Using the >, >>, <, 2> symbols  
Pipelines  
  
Filters  
    Using wc  
    Using sort  
  
Using the grep command  
    Regular expressions  
    Finding patterns

### **Module 5 :: Executing Processes**

---

Process Environment  
Creating a Process  
Grouping shell commands  
Background Processing  
Job Control  
    Suspending a job  
    jobs command  
    Placing a job in the foreground  
    Placing a job in the background

- The kill command
- Using the ps command
- Setting priority with the nice command
- Making a process sleep
- Making a process wait

---

**Module 6 :: Scheduling execution of jobs**

---

- The cron daemon
- Using crontab
  - The cron format specification
  - Managing cron jobs

*Lab Session:*

*Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.*

***Part III : Linux Scripting with awk and bash***

---

**Module 7 :: Basics of awk scripting**

---

- Introduction
- Program Structure
- Using awk
- Expressions & Variables
- Comparison Operators
- Logical Operations with awk
- More examples

*Lab Session:*

*Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.*

---

**Day 3**

---

---

**Module 8 :: Shell Scripting with the bash shell**

---

- Introduction
- Creating shell scripts
- Executing Korn shell commands
- The shell environment
- Shell variables
- Global variables – the export command
- Flow Control
  - Conditional statements
  - The while loop
  - The until loop
  - The for loop
- Relational Operators

- Quoting on the shell
- Shell conditional operators (-a, -e, -f,)
- Signal Trapping on the shell
- Boolean Operators

- Using the for loop effectively
  - Examples

- HERE Documents

- More "real- world" shell scripts
  - Code walk- throughs
  - Debugging shell scripts

*Lab Session:*

*Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.*

**[ OPTIONAL / TIME-PERMITTING ]**

**Module 9 :: System Information (/proc)**

---

- What is /proc ?
- A Map of /proc
  - Individual Process Information
  - Hardware Information
  - Memory Information (meminfo)

---