# Linux Fundamentals / Bash Scripting

|  | **Level** | **Duration** |
|---|---|---|
|  | Introduction | 2 day |

## Course Description

- The main objective of this course is to learn Linux basics and how to use Linux Os.
- This course cover the main topics topics for become a Linux user.

## Audience and prerequisites

- This course is mainly for `DevOps` engineers

## Main Goals

- Each module includes technical hands-on practice with a Linux virtual machine.

## Content

| Module | Content |
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| **Intro** | |
|  | ◆ What is Linux/Unix |
|  | ◆ Differences between windows to Unix |
|  | ◆ Unix vs. Linux |
| **Basic Linux/Unix** | |

| commands | |
|---|---|
| | ◆ aliases |
| | ◆ grep |
| | ◆ history |
| | ◆ ls |
| | ◆ man |
| | ◆ mkdir |
| | ◆ ps |
| | ◆ sed / awk |
| | ◆ ssh / scp |
| | ◆ tldr |
| | ◆ top |
| | ◆ whereis |
| | ◆ which |
| **Unix file system** | |
| | ◆ File system structure |
| | ◆ Permissions (User, Group, Other) |
| | ◆ File system operations |
| | ◆ chmod |
| | ◆ chown |
| | ◆ chgrp |
| | ◆ df / dh |
| | ◆ View content of folder |
| | ◆ Search commands |
| | ◆ symlinks |
| | ◆ Filters / Text Processing Commands (cut, sort, grep, awk, uniq, wc) |

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| **Pipes / Streams** | |
| | ◆ Input/Output |
| | ◆ Pipes |
| | ◆ tee |
| | ◆ File Descriptors (FD0, FD1, FD2) |
| | ◆ File Descriptors (stdin, stdout, stderr) |
| | ◆ Redirection / **heredoc** |
| | ◆ > |
| | ◆ >& or &> |
| | ◆ < |
| | ◆ >> |
| | ◆ >>& or &>> |
| | ◆ >& |
| | ◆ 2&1 |
| | ◆ command >/dev/null 2>&1 |
| **Basic usage & configuration** | |
| | ◆ crontab |
| | ◆ Environment variables |
| | ◆ Pre-Defined variables |
| | ◆ Installing packages |
| | ◆ Working within terminal |
| | ◆ Working with vi/vim |
| | ◆ Basic Vim shortcuts |
| **Manage Users** | |
| | ◆ User account management |
| | ◆ Sudo access |

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| | ◆ Monitor users |
| | ◆ Commands: |
| |     ◆ id |
| |     ◆ passwd |
| |     ◆ users |
| |     ◆ wall |
| |     ◆ whoami |
| |     ◆ write |
| **Linux Commands in deep:** | |
| | ◆ bash / sh |
| | ◆ cat |
| | ◆ cd |
| | ◆ chmod |
| | ◆ chown |
| | ◆ cp / mv |
| | ◆ curl / wget |
| | ◆ echo |
| | ◆ grep |
| | ◆ head / tail / |
| | ◆ history |
| | ◆ locate / find |
| | ◆ ls |
| | ◆ mkdir / rmdir / rm |
| | ◆ more / less |
| | ◆ pipes \| / > / >> / EOF |
| | ◆ ps / nohup / kill |

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| | ◆ sed / awk |
| | ◆ sleep / wait |
| | ◆ source |
| | ◆ sudo / su |
| | ◆ tar / gzip / gunzip |
| | ◆ tee |
| | ◆ touch |
| | ◆ uniq / sort / diff / cmp |
| | ◆ whereis / which / whatis |
| | ◆ xargs |
| **Shells** | |
| | ◆ Config shells (bashrc, vimrc, zshrc, profile etc) |
| | ◆ `chsh / etc/shells` |
| **Bash Scripting** | |
| | ◆ Conditions |
| | ◆ Loops |
| | ◆ Functions |
| | ◆ Signals |
| | ◆ Exit codes |
| **SSH** | |
| | ◆ SSH Basics |
| | ◆ Creating a key pair with ssh-keygen |
| | ◆ Managing and using key pairs |
| | ◆ Understand the content of `~/.ssh/config/` |
| | ◆ SSH Commands |
| | ◆ ssh-keygen |

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| | ◆ ssh-agent |
| | ◆ ssh-copy-id |
| | ◆ scp |
| | ◆ SSH Port forwarding |
| **Putty** | |
| | ◆ working with putty |
| **Networking** | |
| | ◆ `nslookup` |
| | ◆ `dig` |
| **Additional Content** | |
| | ◆ regexp |
| | ◆ `dig` |

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