* Linux
* GIT
* Jenkins
* Ansible
* Maven
* Docker
* Kubernetes
* CI/CD
* Vagrant
* ELK Stack (Elasticsearch, Logstash, Kibana I Elastic)
* Prometheus – Monitoring System & Time series Database
* Vault from HashiCrop
* Terraform(HashiCrop)
* Grafana
* EKS
* Shell Scripting
* Python
* AWS

**Introduction**

* What is DevOps?
* What is SDLC?
* Why DevOps?
* DevOps principles.
* Waterfall vs Agile vsDevOps
* DevOps tools

**GIT**

* Introduction to version control systems
* Centralized vs Distributed
* GIT advantages
* Installing GIT
* Creating repository
* Adding code and creating commits
* Creating GitHub account
* Push code to GitHub
* Cloning repo from GitHub
* Forking GitHub repo and working on it.

**Jenkins**

* Overview
* Installation
* Setting up authentication
* Manage plugins from console
* Installing GitHub plugin from repository
* Adding Ant/Maven support
* Configuring email notifications
* Continuous deployments using Jenkins
* Explore Jenkins system configuration
* Analyzing system logs

**Understanding stages of CI;-CD**

* Continuous download
* Continuous build
* Continuous deployment
* Continuous testing
* Continuous delivery

**Continuous Integration with Jenkins**

* Install Git and Jenkins GitHub Plug-in
* Install Maven on Our Local Box
* Configure Jenkins to Work with Java, Git and Maven
* Create our Jenkins Project
* Trouble Shooting: Create our First Jenkins Project
* Run our First Jenkins Build and Jenkins Workspace
* Source Control Polling in Jenkins
* Other Build Triggers of Jenkins
* Install and Configure Tomcat as the Staging Environment
* Deploy to Staging Environment
* Jenkins Build Pipeline
* Parallel Jenkins Build
* Deploy to Production

**Distributed Builds**

* Introduction to Distributed Jenkins Build
* Creating master slave setup
* Install Jenkins Master Node in the Cloud
* Concurrent Jenkins Build and Label Jenkins Build
* Continuous Delivery with Jenkins
* Code as Pipeline
* CI-CD using Jenkins file

**Pipeline**

* Scripted Pipeline
* Declarative Pipeline
* MultiBranch Pipeline

**Ansible**

* Installing Ansible using RPM or Python PIP
* Inventory
* Ansible Modules
* Running ansible ad-hoc commands
* Creating ansible playbooks
  + VariablesLoops
  + Conditional execution
* Using ansible facts for customization
* Creating ansible roles
* What is Ansible Galaxy
* How to download ansible roles from Ansible galaxy

**Modules and Ad hoc Commands**

* Firewalld
* Uri
* Get\_URL
* APT/YUM
* Service
* User
* Command
* Shell
* Copy
* Fetch
* Archive / Unarchive
* File
* Setup
* Debug
* include
* Stat
* Etc.

**PlayBook for CM automation**

* Writing play books
* Execution of playbooks
* Playbooks for configuring NFS,tomcat,Apache2,FTP etc
* System facts and Custom facts
* Play book Notification
* Play book tags & handlers
* Exception handling

**Roles**

* Converting to Roles
* Using roles for implementing tomcat, apache etc
* External Roles & Galaxy

**Maven**

* **Understanding build process**
* **Creating Maven from command prompt**
* **Maven Dependencies**
* **Maven Stages**
* **Maven Repositories**
* **Maven Plugins**
* **Integrating maven with Jenkins**

**Docker**

* Installing Docker
* Virtualization and Containerization
* Code or Text Editor for Docker and Compose files
* Terminal Emulator and Shell for Docker

**Creating and Using Containers**

* Starting application server, databases and operating systems as containers
* What Happens When We Run a Container
* Container VS. VM
* Manage Multiple Containers
* CLI Process Monitoring
* Linking of containers
* Docker Volumes
* Reusable volumes
* Getting a Shell Inside Containers: No Need for SSH
* Docker Networks: Concepts for Private and Public

**Container Images**

* What's In An Image
* Official Docker Image Specification
* The Mighty Hub: Using Docker Hub Registry Images
* List of Official Docker Images
* Images and Their Layers: Discover the Image Cache
* Images and Containers From Docker Docs
* Image Tagging and Pushing to Docker Hub
* Building Images: The Dockerfile and docker commit
* Building Images: Running Docker Builds
* Building Images: Extending Official Images

**Docker Compose: The Multi-Container Tool**

* • Docker Compose and The docker-compose.yml File
* The YAML Format: Sample Generic YAML File
* Compose File Version Differences (Docker Docs)
* Compose file for creating Development and QA environment
* Setting CI-CD environment for Jenkins uisng Docker

**Docker Swarm:**

* Container Orchestration
* Load balancing using swarm
* Scalling using swarm
* Handling fail over scenarios using swarm

**Kubernetes**

* Introduction
* Kubernetes Architecture
* **Setup Kubernetes**
* Kubernetes Setup – Kubeadm
* play-with-k8s.com
* PODs
* ReplicaSet
* Replication Controllers

**Kubernetes Concepts-PODs, ReplicaSets, Deployments**

* Replication Controllers and ReplicaSets using yaml
* Container Orchestration in Kubernetes
* Load Balancing using Kubernetes
* High availability using Kubernetes
* Scalling in Kubernetes
* Performing Rolling updates and roll back
* Handling Fail over scenarios
* Deployments
* Deployments – Update and Rollback

**Networking in Kubernetes**

* Basics of Networking in Kubernetes
* Demo – Networking in Kubernetes

**Vagrant**

* Introduction to Vagrant
* Introduction & Installing vagrant
* The Vagrant file & Boxes
* Communicating with Vagrant Box
* Network Access
* **Deploying your Vagrant Machine**
* Deploying a Complete Environment
* Setting Environment
* Finalizing the Environment
* Vagrantfile

AWS

* Environment setup in AWS
* Cloud Deployment Scenarios in AWS
* Continuous Delivery in AWS
* Amazon Elastic Compute Cloud (EC2)
* Amazon Simple Storage Service (S3)

**Linux**

* Linux Installation & Hard Disk Partition Details
* LINUX Commands & Shell Commands
* User Administration
* Network Configuration
* Job Automation
* Disk quota management
* Package Management
* DNS
* Managing Installed Services
* Managing Process
* Apache Web Server
* MySQL Server and MariaD
* Log Server and Log File

**Why Use Linux?**

* Costs less
* Stable
* Reliable

**Python Concepts**

* Installing Python on Linux (Ubuntu)
* Creating reusable variables and functions
* Creating a class of Cars
* Creating and using types
* Using lists, dictionaries and tuples
* Python arithmetic operators
* Installing and using libraries
* Comparing Python to Go
* Web scrapper
* To-Do app
* Grab a buddy and start programming!
* CICD for serverless
* CICD for containers and kubernetes
* CICD for VMs

**Terraform(HashiCrop)**

* What is Terraform?
* How to setup your projects to follow along
* Terraform Configuration Files
* Authenticating with the Azure Provider
* Terraform Init, Plan, and Apply
* Using Interpolation within Terraform Configurations
* Why does Terraform need to keep track of state
* Examine the inter-workings of the state file
* Storing the state file centrally using remote state
* Retrieve output from Terraform state
* Create a module
* Pass data between modules
* Learn how to use modules from GitHub
* Learn about the Terraform Registry