Introduction to DevOps (1 day)
- Define DevOps
- What is DevOps
- SDLC Models, Lean, Agile
- Why DevOps?
- History of DevOps
- DevOps Stakeholders
- DevOps Goals
- Important terminology
- DevOps perspective
- DevOps and Agile
- DevOps Tools
- Configuration management
- Continuous Integration, Continuous Deployment and Continuous Delivery

Linux Administration (3 days) : 1 hr theory 1 hr practical
- A Linux Introduction
- Open Source Philosophy
- Distributions
- Command Line Basics
- Basic Shell
- Command Line Syntax – Basic Commands
- Shell Configuration Files
- Variables – Environment / System Variables
- Variables – User Defined
- Globbing and Quoting
- The Linux File System
- Absolute and Relative Paths
- Creating, Moving and Deleting Files
- Files and Directories
- Archives, Compression
- Searching and Extracting Data from Files
- I/O Redirection
- Regular Expressions

- Exercise: Practicing with Pipes and Grep

- Turning Commands into a Script
- Basic Text Editing
- Basic Shell Scripting
- Basic Shell Scripting, Continued

- Exercise: Using the vi Text Editor

- /lib, /usr/lib, /etc, /var/log
- Network Configuration
- Security and File Permissions
- Basic Security and Identifying User Types
- Root and Standard Users
- System Users
- Creating Users and Groups
- User IDs
- User Commands
- Group Commands

- Exercise: Managing User Accounts
- Exercise: Creating User Groups

- Managing File Permissions and Ownership
- File/Directory Permissions and Owners
- Special Directories and Files
- Symbolic Links
- System files, Special Files, and Sticky Bits

DEMO: Installation of VirtualBox , Installation of OS(Ubuntu 22.04 or latest)

GIT - Version Control (2 days : 1 hr theory + 1 hr practical)
- Version control systems
- Local, Centralized and distributed
GIT - Installation
- Installing on Linux
- Installing on Windows
- Initial setup
GIT - Essentials
- Creating repository
- Cloning, check-in and committing
- Fetch pull and remote
- Branching

DEMO : Create github/gitlab account , try to initialize it locally after installation of git client and try git commands.

Docker – Containers Introduction (3 days : 1 hr theory + 1 hr practical)
- What is a Docker
- Use case of Docker
- Platforms for Docker
- Dockers vs Virtualization
Docker - Architecture
- Docker Architecture
- Important Docker components
- Understanding the Docker components
Docker - Installation
- Installing Docker on Linux
- Understanding Installation of Docker on Windows
- Some Docker commands
Docker - Provisioning
- Docker Hub
- Downloading Docker images
- Running Docker images
- Running commands in container
- Running multiple containers
Docker - Custom images
- Creating a custom image
- Running a container from the custom image
- Publishing the custom image
Docker - Networking
- Accessing containers
- Linking containers
- Exposing container ports
- Container Routing

DEMO1: docker Commands
DEMO2: creation of docker files
DEMO3: docker-compose execution
DEMO4: docker-swarm cluster setup and run application on it.

Kubernetes (2 days)
• Need of an container orchestrator
• Kubernetes architecture and installation
• Kubernetes objects : Pods ,deployments ,service ,replica set
• Kubernetes volumes
• Kubernetes scaling
• Kubernetes networking

DEMO1: Installation of Kubernetes master and worker node
DEMOS2: Deployment of 4 to 5 applications with different kubernetes components.

Introduction to Cloud computing (3 days : 1 hr theory + 1 hr practical)
• What is cloud computing
• Characteristics of cloud computing
• Cloud implementation models
• Cloud service models
• Advantages of cloud computing
• Concerns of cloud computing
Basic overview of core AWS services

DEMO1: Run EC2 instance and connect to it.
DEMO2: run static website via S3.
DEMO3: run your application on AWS beanstalk
DEMO4: AWS DevOps : end to end flow
DEMO5: AWS cloudFormation example deployment

Terraform (2 days)
• Intro to IAc
• Terraform installation
• Terrafrom workflow
• Terrafrom commands
• Terraform state management
• Creating infra with Terrafrom
• Security on terraform

DEMO1: deploy your EC2 instance via terraform
DEMO2: your local backend and data block usage
DEMO3: your cloud backend and dynamic Data block
DEMO4: generic modules usage
DEMO5: your own module creation and its use

Ansible (2 days : 1 hr theory + 1 hr practical)
• Introduction to Ansible
• Ansible Agentless Architecture
• Installation
• Ansible Inventories
• Ansible Modules
• Ansible Playbooks

DEMOS1: installation of application via ansible playbooks
DEMO2: Creation of role and it's execution

Jenkins – Continuous Integration (2 days)
• Introduction to Jenkins
• CI/CD Concepts
• Continuous Integration and Continuous Delivery
• Installing and Configuring Jenkins
• The Dashboard
• User Management and Security
• Adding a Jenkins Slave
• Setting Up GitHub
• Plugin Manager

• Exercise: Install a Jenkins Master and Prerequisites
• Exercise: Configuring Matrix-Based Security
• Exercise: Add a Jenkins Slave
• Exercise: Working with the Plugin Manager

• Projects
• Freestyle Project Configuration
• Parameterized Projects
• Upstream/Downstream Projects and the Parameterized Trigger Plugin
• Folders
• Views

• Exercise: Configure a Parameterized Freestyle Project?
DEMO: Configure a Jenkins Freestyle Project

Trigger Plugin
• Pipelines
• Our Java Pipeline Project
• Docker Install
• Installing and Configuring Ant
• he Jenkinsfile
• Configuring and Running a Pipeline
• Artifacts and Fingerprints
• Exercise: Build a Simple Pipeline Without SCM
• Hands-on Labs: Configure a Jenkins Pipeline
• Testing With Jenkins
• About Testing
• Unit Testing with JUnit and Ant
• Deploying to Apache
• Functional Testing
• Pipeline Enhancements
• Multibranch Pipelines and Code Promotion
• Tagging
• Notifications
• Shared Pipeline Libraries

• Exercise: Configure Notifications in a Pipeline

DEMO: Configure a Jenkins Pipeline Project end to end with sonarqube and Nexus Repo

Monitoring & Observability (1 day)
• SRE Introduction
• Logs, Traces, and Metrics
• Introduction to Grafana & Prometheu

DEMO: Installation of Grafana+Prometheus and How it monitors application.

Azure DevOps : (1 Day)
DEMO: Create end to end pipeline from Dev--> Staging-->Production

Interview Questions and Answers (1 Day)
Discussion and PPT as a cheat sheet.