ntroduction

1. Software development life cycle (SDLC)

2. Water fall model

3. Agile methodology

ntroduction

1. Software development life cycle (SDLC)

2. Water fall model

**Azure Devops Course Content**

# Introduction to DevOps – Day 1

# Why DevOps and roles and responsibilities

* How DevOps and Cloud exists in today’s world
* DevOps tools for DevOps SDLC
* Development SDLC: Water Fall VS Agile.
* What is Continuous Integration and Delivery how it’s related to DevOps

# Linux : Day 1

* Linux Introduction
* Command line utilities and basic commands
* Linux File system introduction
* Text Editors
* Filters and Redirections
* Users & Groups and Permissions

**Version Controlling & Source Code Management (VCS & SCM)& GitLab: Day 2**

* Introduction to VCS and SCM.
* Overview of Git and GitHub.
* Installing Git on Windows and Linux.
* Creating branches in Git.
* Understanding real-time branching strategies.
* Creating Public and Private Repositories.
* Pushing (committing) code to GitHub.
* Pulling (checkout) code from GitHub and doing Password less
* authentication.
* Merging Code with different branches and how to review code
* while merging.
* Realtime common git issues and how to resolve those.
* Working with Tagging, Git Stash, Rebase and Cherry Pick

# Azure Repos : Day 3

* + - Introduction to Azure Repos
    - Azure Repos Integration (Visual Studio Code)
    - Files
    - Commits
    - Pushes
    - Branches
      * Merge Branch
      * Branch Policy
      * Branch Security
    - Pull
    - Clone Repos to GitHub
    - Clone Repos From GitHub
    - Repositories Level Security

# 

# Azure Pipelines: Day 3

* + - Pipelines
    - Releases
      * Stages
      * Approval
    - Azure Pipeline with Azure App Services
    - YAML Pipeline
    - Azure Release Pipeline
    - Deployment Patterns
    - Release Tools
    - Tasks and Templates

# Docker: Day 4

# Virtualization VS Containerization.

# What is Docker, Docker Hub and Docker benefits.

# Understanding Docker components, Architecture and Life cycle.

# Installing Docker on Linux (AWS cloud).

# Deep dive about Docker image and Containers.

# Working with most of Docker commands.

# Running multiple containers and Docker compose.

# Docker key words, creating custom images, running, building

# and pushing to Docker Hub.

# What are microservices, use of docker with microservices and

# creating a real-time custom image and working with it.

# Building Docker images and pushing those to Docker Hub

# public repository and private repository on AWS.

# Docker volumes, linking containers and exposing ports.

# Integrating Docker with Jenkins and automating.

# Docker Networking and basics of Docker Swarm.

# Kubernetes : Day 5 & Day 6

* + Introduction to Kubernetes
  + Understanding the components of Kubernetes Master
  + Understanding the components of Kubernetes Node (Minion)
  + Install Kubectl
  + Create Kubernetes cluster in Azure (Azure Kubernetes Service)
  + Running Commands
    - Connecting to Kubernetes Environment
    - Get Pods
    - Get Nodes
    - Get Kubernetes List
    - Get Services
    - Running Pods
  + Working with P
  + Introduction to YAML Files in Kubernetes environment
    - Creating of Pod YAML
    - Introduction & creating of service YAML
    - Creating Replication Controller
    - Creating Replica Set
    - Performance Scaling
    - Deployment Object
      * Updating a Deployment
      * Rolling Back
      * **Kubernetes Volumes**

**Ansible : Day 7**

* + - * + Introduction About Ansible
        + Install Ansible
        + Performing configuration
* Using Adhoc Commands
* Using Playbooks
  + - * + Creating new inventory file
        + Adding a new Node
        + Modules in Ansible
* Shell module
* User module
* apt module
* File Module
* Copy Module
* Fetch Module
* Git Module
* Service Module
* Replace Module
* URI Module
  + - * + Performing related operations using multiple Module
        + Creating a playbook and running it
        + Playbook to configure tomcat9
        + Variables in Playbook
* Global scope variables
* Play scope variables
* Host scope variables
  + - * + Grouping of Inventory file
        + Implementing loops
        + Vault
        + Handlers
        + Error Handling
        + Ansible Roles

**Terraform : Day 8**

* Introduction to Terraform
* Understanding Providers
* Installation to terraform
* Main Commands of Terraform
* Terraform INIT
* Terraform Plan
* Terraform Apply
* Terraform Destroy
* Create Resource Group
* Create Virtual Machine
* Create Azure Container Registry (ACR)
* Terraform Variable
* Creation of Storage Account
* Delete the Storage account
* Create Container in Storage account
* Create Git Repository
* Importance of Terraform State Fil

### **[Code Quality, Security & Static Analysis Tool with SonarQube: Day 9](https://www.sonarsource.com/products/sonarqube/)**

* + - * What is SonarQube?
      * Features of SonarQube
      * SonarQube installation
      * SonarQube hands-on
      * SonarQube Integration with Azure DevOps

**Continuous Integration tool (Jenkins): Day 9 & Day 10**

* **Overview of Continuous Integration and the need for it.**
* **Setting and Starting Jenkins. Different ways to configure Jenkins.**
* **Creating Freestyle, Maven style, Pipeline, Multi pipeline style Jobs.**
* **Configuring Different tools like Java, Git, Maven, SonarQube,Tomcat etc to Jenkins.**
* **Adding and working with different kinds of Jenkins Plugins.**
* **Creating fully automated jobs to pull code from GIT, build using Maven, check Code quality using SonarQube, take backup in Nexus and deploy to Tomcat.**
* **Creating Jenkins Pipeline and Multi branch pipeline jobs (Using Groovy script).**
* **Working with real-time branching strategies.**
* **Configuring Jenkins Master-Slave and working with them effectively.**
* **What is Continuous Integration, Continuous Delivery and Continuous Deployment.**
* **Different ways to trigger builds and what is Labels and how to work with labels.**
* **Parallel execution of Jobs.**
* **Creating Jobs for Dev, QA, UAT and Prod environments**