DevOps

Duration
1 month

Celebrating 15 years of glorious success and transforming futures!

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About Infocampus

Infocampus is a community of learners, educators, and industry professionals dedicated to creating a supportive and dynamic learning environment. Since 2009, we have specialized in IT and networking courses for both beginners and professionals, bridging the gap between theory and practice. Our mission is to prepare students for the evolving tech industry, making us a trusted choice for career advancement in technology.

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Key Features

- Hands on training for real world application
- Highly experienced and skilled faculties
- State-of-the-Art Infrastructure
- Course completion certificate
- Job Assistance

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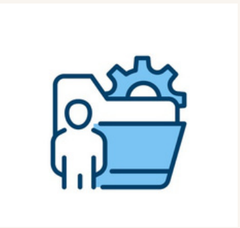
OUR VISION

- Assessments 
- Projects 
- Certification 
- Placement 

DevOps

This DevOps course offers a comprehensive introduction to the principles and practices of DevOps, focusing on the integration of development and operations teams to improve collaboration and productivity. Participants will learn how to automate the software development lifecycle, streamline deployment processes, and enhance system reliability and scalability. The course covers essential DevOps tools and technologies, including continuous integration/continuous deployment (CI/CD) pipelines, infrastructure as code, containerization, and monitoring. Ideal for developers, system administrators, and IT professionals, this course equips learners with the skills to implement DevOps practices effectively, fostering a culture of continuous improvement and innovation in their organizations.

Course Curriculum
Azure DevOps (AZ-400)

DevOps Introduction

- Traditional Software Development Life Cycle
- Waterfall Model
- About Agile Methodology.
- What is DevOps?
- DevOps Practices?
- The Challenge
- Benefits of DevOps over Traditional IT
- DevOps Tools
- What is CI and CD
- DevOps as a profession – DevOps Engineer

Azure DevOps

- What is Azure DevOps
- Version History
- Azure DevOps Features
- Azure DevOps Tools and Project Life Cycle
- Create DevOps Account
- Create Organization
- Create Project and Get Started
- Create Users and invite teams' members.

Azure Boards

Introduction

- Working with Work Items
- Epic, Feature, User Story, Task, Bug, and Test Cases
- Linking Items
- Collaborate with Team members.
- Follow a Work Item
- Dashboards
- Capacity Planning with Sprints
- List work items using Queries.

Azure Repos, GitHub, and GIT

- Version control using Git.
- What is Git, Azure Repos and GitHub
- Install Git Locally
- Getting Started with Git Commands
- Updating to DevOps Repository
- Working with Branches
- Merging Branches
- Creating and Committing a Pull Request
- Add a rule to Require a Review
- Squash Merging during Pull Request.
- Working with Merge Conflicts
- Cherry-Picking and Rebase
- Undo Changes using Reset and Revert
- Ignoring files using gitignore
- Managing Git Branches in Azure Repos

- **Branch Policies and Branch Permissions**
- **Branches in Folders**
- **Working the GitHub Repositories**
- **Branching Workflow Types**
- **Feature Branching**
- **Gitflow Branching**
- **Forking Workflow**

Azure Repos TFVC

- About TFVC
- Using TFVC in VS.NET
- Moving from TFVC to Git

Continuous Integration using Azure Build Pipelines

- About Azure DevOps Pipeline
- Understanding the Build Process
- Create a Pipeline using Classic Editor
- Enable Continuous Triggers for Build Pipeline
- Add a status badge to Repository
- Working with Task Groups
- Validate Pull Request based on Build Pipeline result
- Add a Widget to Dashboard Continuous Integration using YAML Pipelines
- Understanding YAML file format
- Building Azure DevOps Pipeline using YAML
- Publishing results to Artifacts
- Triggering Continuous Integration in YAML

- Filtering Tasks based on branch being built
- Using Templates to Build Multiple Configurations
- Build on Multi-Platform pipeline

Integrating Quality Tests in Azure Pipeline

- Overview of Testing
- Add Unit Tests to your Application
- Integrating Unit Test with CI Pipeline
- Add the Test Widget to Dashboard
- Perform Code Coverage Testing using Cobertura

Scan Code for Vulnerabilities and License Ratings in CI Pipeline

- Sources and Impacts of Technical Dept
- Managing Technical Dept with DevOps and Sonar Cloud
- Scan open-source components using WhiteSource Bolt Continuous Deployment using Azure Pipelines
- What is Continuous Delivery
- Connecting to Azure Subscription
- Deploying App to App Service using Designer
- Multi-State Pipeline

- Approvals and Gates
- Working with Task Groups
- Deploying App to Virtual Machine
- Deploying App to App Service using YAML
- Add the deployment State to the pipeline
- Deploy Apps to Specific Environment
- Deploy Azure Functionsft

Deep Dive into CI ad CD Pipeline

- Introduction
- Retention Policies
- About Build Agents
- About Agent Pools
- Create Self Hosted Windows Agent
- About Libraries

- Variables
- Secure Files
- Pipeline Conditions
- Pipeline Demands
- Integrating Pipeline with Microsoft Teams

UI Test using Selenium

- UI Test with Selenium on Local System
- UI Tests in Build and Release Pipeline
- Capture Video

Azure Key Vault

- Introduction to Key Vault
- Secrets vs Keys
- How it Works
- Creating a Key Vault Service and Add Keys and Secrets
- System Assigned and User Assigned Managed Identity
- Reference Key Vault in ARM Template
- Reference Secrets with Dynamic ID

Working with SQL Database

- Creating a Database Project
- Database Deployment using DACPAC
- Deploying Database using SQL Scripts in Pipeline
- Using Multiple Stages and Approvals

IaC using ARM Templates

About Infrastructure as Code (IaC)

- About ARM Templates
- Sample to Create Storage Account using ARM Template
- Deploy Templates using PowerShell
- Deploy Templates using Azure Portal
- Deploy Templates using Azure Pipeline
- Incremental and Complete Deployment
- Creating VM using ARM Template
- Create linked ARM Templates
- Creating Resource Group and Resources at Subscription Level

IaC using Terraform Templates

Overview of Terraform

- Terraform Files Structure
- Terraform Commands
- Run a Terraform plan from Azure Cloud Shell
- Provision Terraform Tasks in Azure Pipeline – Classic Editor
- Provision Terraform Task in Azure Pipeline – YAML File

IaC using Ansible

Overview of Ansible

- Ansible Workflow
- Ansible Components
- Installing Ansible
- Playbook Structure
- Executing a Playbook

Azure Artifacts

- What are Artifacts
- Public and download Build Artifacts
- Publish and download Pipeline Artifacts
- Working with Feed and NuGet Packages
- Share Packages Publicly
- Public NuGet Package from Pipeline to NuGet Feeds
- Upstream Sources and View

Continuous Integration using Jenkins

- Jenkins Management
- Adding a slave node to Jenkins
- Building Delivery Pipeline
- Pipeline as a Code

Working with Containerization using Docker

Understanding VM and Containers

- What is Docker and its Benefits
- Docker Architecture
- Steps to Create Docker Image
- Build and Publish Docker Image to Docker Hub using Azure Pipeline
- Build and Publish Docker Image to Azure Container Registry using

Azure Pipeline

- Deploying to Web App
- Deploying a Docker Container in VM or Local Machine using Docker Compose

Working with Kubernetes

- Deploying Applications to Kubernetes Cluster
- What is Kubernetes
- Kubnetes Server and Client Components
- Creating an AKS Cluster
- Writing Deployment and Service YAML files
- Deploying the Application using Kubectl
- Building a CI and CD Pipeline for Deploying to Kubernetes Cluster

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