Hatigen Consulting Services Pvt Ltd

Azure DevOps Course

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Program Overview:

Azure DevOps Course curriculum is curated by the industry experts that help you to become proficient in Azure and DevOps. Furthermore, as this course content is aligned with the Azure DevOps AZ-400 exam, you will gain in-depth knowledge to become a certified Azure DevOps professional. Adding to this, you will get a hands-on learning experience in Azure resource management, Azure administration, GIT, Docker, Jenkins, Ansible, Azure Boards, Azure Pipelines, etc.

Program Features:

- Trusted content
- Re-learn for free anytime in a year
- Rigorous assignments and assessments
- Learn at your own pace
- Mandatory feedback sessions
- Mock-interview
- Hands-on real-time experience

- Free Mentorship
- Live chat for instant solutions
- Job-ready employees post-training
- End-to-end training
- Download the certificate after the course

Delivery Mode:

- Online Training

Prerequisites:

Individuals or working professionals who have basic knowledge in any programming language can join this Azure DevOps certification training course online.

Teaching Methodology

6 Components

- Pre-classroom activity: In this students to basic setup of tools following the instructions provided by the faculty in advance
- Classroom Theory: Understand concepts
- Classroom Practicals: The faculty will share the live screen and demonstrates students
- Post-Classroom Assignments and their discussion in subsequent classes
- Assessment and Quizzes
- Self-study interview questions and their solutions

Topics to be covered during this course (Estimated Time - 50 hours)

Topic 1: Introduction to DevOps (Estimated Time - 2 hours):

Why DevOps?

- A brief history of software development approaches and their challenges
- Agile Vs DevOps
- How DevOps helps with disadvantages of traditional software development models

- **What is DevOps?**

  - Definition
  - 5 Pillars of DevOps
    - Reduce Silos
    - Accept failure as normal
    - Incremental changes
    - Automate
    - Measure
  - DevOps Vs SRE
  - 3 sections to be covered in this course
    - Version control and CI/CD
    - Configuration management
    - Measuring and Monitoring

Prerequisites

- Familiarity with Unix type systems
- Knowledge of basic commands
- A laptop (with RAM 4 GB or more preferred)

Topic 2: Achieving the prerequisites (Estimated Time - 2 hours)

Hands-on with Linux

- Setup a linux machine on Amazon Web Services (AWS)
- Run and learn the commands necessary for DevOps
  - Basic (ls, cat, uname, pipe, tail/head, history, sudo, kill, cut, grep)
    Intermediate (redirection, find, sed, ps, kill, du, df, top, curl, wget, xargs, tar,unzip, gunzip, screen, directives, tee)
  - Advanced (ssh-keygen, scp, netstat, package-managers, symbolic links, file

permissions, daemon, services, /etc/init.d, wheel, nslookup, dig, lsof)

- Setup your own Linux Environments in AWS

Understanding Agile (Estimated Time - 2 hours)

- Scrum
- Kanban
- Setting up your scrum board for your project “My DevOps Learning”

Topic 3: Version control through Git (Estimated Time - 4 hours)

What and Why Version Control?

Types of version control

- Centralized version control: Perforce
- Distributed version control: Git

Setting up git

- Install git
- Setup git config
- Create github account
- Create your own project on github
- Clone the project to your local

Git in action

- The concept of Clone, pull. fetch and fork
- Git index and staging area
- The concept of remote and upstream
- Checking history in git
- Conflict resolution
- Push from local to github

Branching in Git

- Create branch
- Merging
- Rebase

Review mechanism in version control

- Generate pull request
- Add reviewers
- Approve and merge as admin/approver

Topic 4: CI/CD (Estimated Time - 5 hours)

Introduction

- What and why CI/CD?
- Difference of Continuous Integration, Continuous Delivery and Continuous Deployment.
- What is a build?
- Introduction to Build Tool 'GNU Make'

Setup Jenkins

- Setup Jenkins on AWS
- Jenkins UI Tour
    - Jobs
    - Manage Jenkins
    - Global Configurations
    - Manage Plugin

Creating the first job

- Create folder
- Create job
- Job parameters
- Setup Version Control
- Execute Shell

- Invoke build tool
- Post build actions
  - Archive Artifacts and test cases
  - Email Notifications
  - Trigger Downstream builds
- Jenkins Security
  - Jenkins own user database
  - Matrix based security
  - Global and Project based security
- Jenkins Pipeline
  - What and why pipeline?
  - Stage and steps in pipeline
  - Jenkinsfile: Declarative vs Scripted
  - Setup your first pipeline
  - Parse parameters among steps in pipeline
  - Advanced topics
- Jenkins Administration
- Discussion on Certified Jenkins Engineer

Topic 5: Ansible (Time Estimated - 5 Hours)

- Introduction to Ansible
- Ansible use cases
- Comparison of Ansible and other popular tools
- Getting started with Ansible
  - Ansible setup
  - Ansible config files
  - Ansible modules and arguments
  - Ansible Playbooks
  - Ansible Roles
  - Quick introduction to Ansible AWX and Ansible tower

Topic 6: Terraform (Estimated Time - 6 hours)

- Introduction
- Setting up
- Terraform use-cases
- Deploying infrastructure with Terraform
- Interpolation, attributes and deployment of multi-tier architecture
- Terraform Provisioners
- Terraform Modules and workspaces
- Remote state management
- Security

Topic 7: The curious case of Vagrant and Packer (Estimated Time - 2 hours)

Topic 8: Container and Container Orchestration (Estimated Time - 14 hours)

Docker

- What are containers?
- Container Vs Virtual machines
- Docker Setup
- Docker in action
    - Docker run in details
    - Listing runnign containers
    - Container lifecycle
    - Container operations: Start, stop, remove, check logs
- Docker Images
    - What are images?
    - Creating a dockerfile
    - Base image
    - Image build process
    - Manual creation and tagging of image

Kubernetes

- What and why of Kubernetes
- Kubernetes architecture
- Kubernetes Pods
- Services in Kubernetes
    - Services
    - Nodeport and ClusterIP
    - Pod selection with labels
- Kubernetes ReplicaSets
- Kubernetes Deployments
- Kubernetes Networking and service discovery
- Microservice Architecture
- Persistent volumes
- Logging in a Kubernetes cluster

DevOps Monitoring (Estimated Time - 5 hours)

- Why Monitor?
- What all to monitor?
- Monitoring in Action
    - Monitoring Kubernetes Clusters with Prometheus and Grafana
    - The Elastic Search, Logstach, Kibana (ELK) Stack

Topics :

- Webserver – Linux (httpd) & Windows (IIS)
- Database (RDBMS) - MySQL/Aurora/Mariadb
- AWS Basics
- AWS Global Infrastructure
- AWS VPC
- AWS Global Vs Region Based Services
- AWS Bastion/Jumpbox/Proxy