

# DEVOPS

## 180 Days Training Program



**DevOps: Bridging the Gap between  
Development and Operations**



IIHT Jaipur believe that upskilling is mightier than massive layoffs. And not just us, but countless companies attest to it and have adopted this approach in their businesses as well. The domain expertise these upskilled individuals bring in is what sets them apart. We focus on nurturing these aspects. So, whether you are a student in college or a fresh graduate entering corporate, we have something for you to offer.

We are an online and offline training institution that provides students and professionals with courses in high demand. We provide training in a vast array of technologies, including Cloud Computing, DevOps, Cyber Security, Full stack development, Data Science, Digital Marketing, and Web Development, among others.

DevOps is an efficient software development strategy that is extensively adopted by businesses worldwide. By integrating and automating processes between development and IT operations, DevOps enables continuous software development and deployment. The instruments and principles expedite the overall procedure.

## Live Interactive Learning

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- Instant doubt clearing

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- Lifetime Access Course
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- One-On-One Learning
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## 1. Introduction to DevOps

- Define DevOps
- What is DevOps
- SDLC models
- Why DevOps?
- History of DevOps
- DevOps Stakeholders
- DevOps Goals
- Important terminology
- DevOps perspective
- DevOps and Agile
- DevOps Tools
- Configuration management
- Continuous Integration and Deployment

## 2. Linux: An open-source OS ( Basic Linux )

- Linux Essentials
- Installation of Linux OS
- Working With basic Command in Linux
- Working With package management
- Working With Remote Sessions.
- Working With WebServer like Apache or nginx.

## 3. Cloud Computing

### 1. Introduction

- What is Cloud Computing
- What is Deployment Model and Service Model
- Industry Use Cases.

### 2. Cloud Computing with AWS Public Cloud

- Compute Service: EC2
- Storage Service: EBS,S3
- Network Service: VPC
- LoadBal Service: ELB
- Scaling Service : EC2-autoscaling
- Container Service: ECS
- Monitoring Service : Cloud Watch
- Containerise Service: ECR

## 4. GIT: Version Control Tool ( Basic To Advance Level )

### 1. Introduction

- What is Git
- About Version Control System and Types
- Difference between CVCS and DVCS
- A short history of GIT
- GIT Basics
- GIT Command Line
- Installing Git on Windows



## 2. Git Repository

- Creating and Working on the repository
- Cloning, check-in and committing
- Fetch pull and remote

## 3. Git Branching

- Creating and Working on Branches.
- Switching between the branches.
- Merging Strategy between the branches.
- Compressing Strategy for committing History.

## 4. GitHub:

- What is GitHub & Difference between git and GitHub advantages
- Collaboration in GitHub.
- Resolving issues on GitHub.

## 5. Ansible:

- Configure Management Tool
- What is configuration Management.
- Why Ansible is used for Configure Management.
- Ansible Installation on Linux
- Ansible Configuration Hierarchy.
- Ansible Hosts Inventory File.
- Ad-Hoc Commands.
- Introduction to Playbooks.
- Playbook Structure.
- Introduction to Modules.
- Common Modules.
- Ansible Variables and Facts

## 6. Docker: Containerization

### 1. Basic of Docker, command, Networking

- Introducing Docker
- Comparing VM and Docker
- Docker
- An Architectural overview
- Preparing docker-machine
- Installation and configuration
- Start containerizing
- Play with docker images
- Customizing container on your own
- Running Container with Docker
- command
- Port forwarding with docker container
- The Docker Hub A brief Introduction

### 2. The Dockerfile, Builds and Network Configuration

- Dockerfile Directives
- USER and RUN
- CMD vs. RUN
- ENTRYPOINT
- EXPOSE



- Docker Container Volume Management
- An introduction
- Docker Networking concepts
- List and Inspect
- Create and Remove
- Assign to Containers.

### 3. Docker-Compose

- Networking Overview
- The Default Network
- Isolating Containers
- Aliases & Container Names
- Links
- How Updates Affect Networking
- Using External Networks
- Configuring Compose
- Bringing an Environment Up
- Changing a Running Environment
- Taking an Environment Down

### 7. Orchestration Tool: Kubernetes

- What is Kubernetes
- Kubernetes Components
- The Kubernetes API

#### 2. Working with Kubernetes Objects

- Understanding Kubernetes Objects
- Kubernetes Object Management
- Names and Namespaces
- Labels and Selectors
- Field Selectors

#### 3. Cluster Architecture

- Nodes
- Master-Node Communication
- Controllers
- Concepts Underlying the Cloud Controller Manager

#### 4. Containers

- Images
- Container Environment Variables
- Runtime Class
- Container Lifecycle Hooks ✓

#### 5. Workloads

- Pods
- Pod Overview
- Pods
- Pod Lifecycle
- Init Containers
- Pod Preset
- Pod Topology Spread Constraints
- Controllers



- ReplicaSet
- Deployments
- StatefulSets
- Jobs
- Run to Completion
- CronJob

## 8. Jenkins: Continuous Integration/Continuous Release

### 1. Introduction

- Agile Development
- What is Continuous Integration
- Typical Setup for Continuous Integration
- Jenkins Continuous Integration
- Jenkins Features
- Running Jenkins

### 2. Installing Jenkins

- Downloading and Installing Jenkins
- Running Jenkins as a Stand-Alone Application
- Running Jenkins on an Application Server

### 3. Jenkins Job

- Different types of Jenkins Job -
- Configuring Source Code Management (SCM)
- Working with Subversion / Git, Build Triggers
- Schedule Build Jobs -
- Polling the SCM
- Maven Build Steps

### 4. Securing Jenkins

- Jenkins Security Overview
- - Authentication, Confidentiality
- Activating Security, Configure Authentication
- Using Jenkins Internal User Database
- Creating Users
- Authorization, Matrix-Based Security, Note Create the Administrative User
- Project-based Matrix Authorization

### 5. Jenkins Plumbing

- Introduction
- Jenkins Plugins
- SCM
- Jenkins Plugins
- Build and Test
- Jenkins Plugins Analyzers
- Jenkins for Teams
- Installing Jenkins Plugins

### 6. Troubleshooting

- Finding and debugging errors in deployments and implementation: Jenkins

## 9. React Js:

- Introduction to React. JS
- Creating a React web app



- Creating a docker file for React Webapp
- Building an image of the React Webapp
- Publishing the images on the image registries.
- Deploy the React App into the Containers orchestration tool

## 10. Node Js

- Introduction to Node. JS
- Creating a Node web app
- Creating a docker file for Node Js Webapp
- Building an image of the Node Js Webapp
- Publishing the images on the image registries.
- Deploy the Node Js App into the Containers orchestration tool



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