



**Course: DevOps** 

Duration: 70 Hrs (Changeable) | Fees: Individual / Batch

Since 2007, Nestsoft TechnoMaster has been providing training, internships, and services in IT technologies, both online and offline, with the expertise of over 250 industry experts. We have delivered internships, training, and seminars to more than 50,000 students, resulting in numerous success stories. We offer 100% placement support through JobsNEAR.in

#### **Our Courses/Internship**

- Python/Django Fullstack
- Artificial Intelligence
- Machine Learning
- Data Science
- Software Testing (All)
- Wordpress, Woocommerce
- Digital Marketing, SEO
- Php/MySQL, Laravel
- Flutter, Android, IOS
- Asp.net MVC
- Web Design, Javascript
- Angular JS, React JS
- CCNA, MCSA, CCNP
- AWS, GCP, Azure
- Odoo, SalesForce, Sap
- Microsoft Excel
- Ethical Hacking



Syllabus on the Next Page ..



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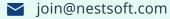
- \* DevOps Overview
- \* Waterfall, Agile and DevOps
- DevOps (What, Why, Benefits)
- \* Overview â€" CICD
- **AWS Fundamentals**
- Physical and Virtual Servers
- Public/Private Cloud Computing
- AWS/Azure/GCP (OV)
- Benefits of Cloud Computing
- \* Pricing and Usage Policy
- \* IAM ServiceEC2 Service
- \* RDS ServiceCloud Storages
- \* Elastic IP, CloudFront and ELB (OV)
- \* Practical
- \* AWS Free Tier Account Creation
- \* IAM User Creation
- **\*** EC2 Instance Creation
- **Security Group Configuration**
- Creation of database using RDS
- Connecting Ec2 Instance
- \* Connecting database
- \* Creation of S3 storage
- \* Linux Fundamentals

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- \* Linux
- \* Linux Architecture
- \* Linux Distributions
- **Basic Linux Commands**
- File Permission Management
- User CreationShell Scripts
- \* SSH and VI Utility
- Practical
- Creation of User
- \* Establishing SSH Connection to the Server
- \* File creation and Manipulation using VI editor
- Managing permissions
- Basic commands execution
- Writing Shell Scripts ProgramJava Concepts
- \* Build Tools â€" Maven
- Python
- \* SQL
- # Git and GitHub
- \* Version Control System
- \* Central vs Distributed Version Control System
- \* Introduction to Git
- \* Installation and setting up Git

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- \* Important Git Commands
- Creating and Managing git Repositories
- \* Branching, Merging, Stashing, Rebasing, Reverting and Resetting
- Introduction to GitHubManaging Remote Repositories
- Practical
- Installation and Configuration of git
- Creating Git Repositories
- Demonstrating various Git repositories
- Merging Branches and Managing merge conflicts
- Stashing, Reverting, Rebasing and Resetting
- \* Collaborating local and remote repositories
- # Jenkins :-
- Overview of Continuous Integration
- \* Difference between Continuous vs Traditional Integration
- Overview of Jenkins
- Jenkins Master-Slave Architecture
- \* Jenkins Installation and Configuration
- \* Jenkins PluginsJenkins Management
- \* Jenkins Freestyle and Pipeline Jobs
- Scripted and Declarative Pipelines
- Configuring Slave Node to Jenkins
- Practical:

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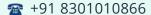
#### Since 2007, Making IT Experts & Products

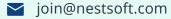
- \* Installation and Configuration of Jenkins
- Configuration of Tools
- \* Configuration of Plugins
- Creation of Freestyle Jobs, scripted and declarative pipeline jobs
- \* Demonstrate pipeline triggering using GitHub webhooks
- Scripted and Declarative pipelines
- Integration of Code Coverage Tools and Static Code analysis tools
- Triggering pipelines using Git Web Hooks
- Creation of CICD pipelines
- \* Adding slave node to Jenkins
- \* Docker, and Docker Hub
- \* Introduction to Virtualization and Containerization
- What is ContainerizationDocker Architecture
- \* Docker Hub (OV)
- Docker Installation
- **Docker Commands**
- **Container Modes**
- \* Port Binding
- Docker file
- \* Managing Docker Images
- Running and Managing Containers
- \* Docker Volume

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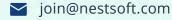
- \* Docker Compose
- Overview of Docker Swarm
- \* Practical: Installation of Docker and Docker Compose on AWS EC2
- \* Running Docker Commands
- Writing Docker Files for various applications Building Docker Images
- Pushing Images to Docker HubRunning Docker Containers
- **Container Port Binding**
- \* Running multiple containers using Docker Compose file
- \* Persisting container data using Docker Volume
- \* Initialize a docker swarm and demonstrate workload deployments
- \* Kubernetes
- Overview of Container Orchestration
- Different between Docker swarm and Kubernetes Cluster
- Kubernetes Architecture
- Installation of Kubernetes â€" Minikube and EKS
- Kubernetes NodesKubernetes Pods
- **Kubernetes Deployments**
- \* Rolling updates and rollbacks
- Scaling up and down of the application
- Services in Kubernetes
- \* Practical:Installation and configuration of Kubernetes Minikube
- \* Creation of Pods and Deployments using ad-hoc Commands

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- \* Creation of Pods and Deployments using YAML files
- Scaling up and Scaling Down of the application
- \* Rolling out Deployments and Rolling Back
- Creation of Services Configuration Automation using Ansible
- Overview of Configuration Automation
- Introduction to Ansible
- Ansible Architecture
- Components of Ansible
- \* Installation and Configuration of Ansible
- \* Ansible ad-hoc commands
- \* Ansible Playbooks
- \* Ansible Variables
- **Ansible Handlers**
- \* Ansible Role using Ansible Galaxy
- \* Practical:
- Installation and Configuration Ansible
- Running Ansible ad-hoc commands.
- \* Writing Ansible Playbooks to Configure Servers
- Creating Ansible Roles
- Terraform
- Introduction to Terraform
- Terraform Vs Ansible

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- **Terraform Architecture**
- **Terraform Configuration**
- \* Terraform Commands
- Managing Terraform Resources
- Terraform End to End Project
- Practical:
- Installation of Terraform on AWS EC2 Instance
- Writing Terraform Configuration
- Creation of AWS EC2 instance using terraform
- \* Managing AWS resources using terraform
- \* End to End Infrastructure Creation Project.
- \* Prometheus and Grafana
- Overview of continuous monitoring
- \* Continuous monitoring tools in DevOps
- \* Installation and Configuration of Prometheus and Grafana
- Prometheus Architecture
- Monitoring using Prometheus
- \* Dashboard visualization using Grafana
- Practical
- Installation and Configuration of tools
- Monitoring Targets using Prometheus
- \* Visualizing Reports using Grafana

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\* Project / Internship (Any)

### Syllabus 1. Introduction to DevOps Overview

- \* : Understanding the DevOps philosophy and its
- \* significance in modern software development.

#### **Key Concepts**

- \* : Continuous Integration (CI), Continuous Deployment (CD),
- \* and the DevOps lifecycle.

#### 2. Version Control Systems

### Git: Mastering Git commands, branching strategies, and collaboration workflows.GitHub/GitLab

- \* : Utilizing platforms for repository management and team collaboration.
  - 3. Continuous Integration and Continuous Deployment (CI/CD)

Jenkins: Setting up pipelines, automating builds, and integrating testing.

Azure DevOps: Implementing CI/CD pipelines using Azure services.

#### 4. Configuration Management

Ansible: Automating infrastructure provisioning and configuration.

Chef/Puppet: Managing system configurations and deployments.

#### 5. Containerization and Orchestration

Docker: Creating, managing, and deploying containerized applications.

Kubernetes: Orchestrating container deployments, scaling, and management.

#### 6. Infrastructure as Code (IaC)

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Terraform: Defining and provisioning infrastructure using code.

CloudFormation: Managing AWS resources through templates.

7. Monitoring and Logging

**Prometheus: Collecting and analyzing metrics.** 

Grafana: Visualizing data and setting up dashboards.

ELK Stack: Implementing Elasticsearch, Logstash, and Kibana for log management.

8. Cloud Platforms

AWS: Exploring services like EC2, S3, and Lambda.

Azure: Utilizing Azure services for DevOps practices.

Google Cloud Platform (GCP): Leveraging GCP services in DevOps workflows.

9. Security in DevOps

DevSecOps: Integrating security practices into the DevOps pipeline.

Vulnerability Assessment: Identifying and mitigating security risks.

10. Testing Automation

Selenium: Automating web application testing.

JUnit/TestNG: Implementing unit testing frameworks.

11. Collaboration and Communication

Agile Methodologies: Applying Agile principles in DevOps.

Tools: Using Jira, Confluence, and Slack for team collaboration.

12. Case Studies and Real-World Applications

Industry Examples: Analyzing successful DevOps implementations.

Best Practices: Learning from real-world scenarios and challenges.

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(Click on Course for more details)

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- Thank You -

N.B:This syllabus is not final and can be customized as per requirements / updates.

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