

Since 2007, Making IT Experts & Products

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 – 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 “ 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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- * 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 Containerization Docker 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 applicationsBuilding 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 “ 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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- Thank You -

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

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