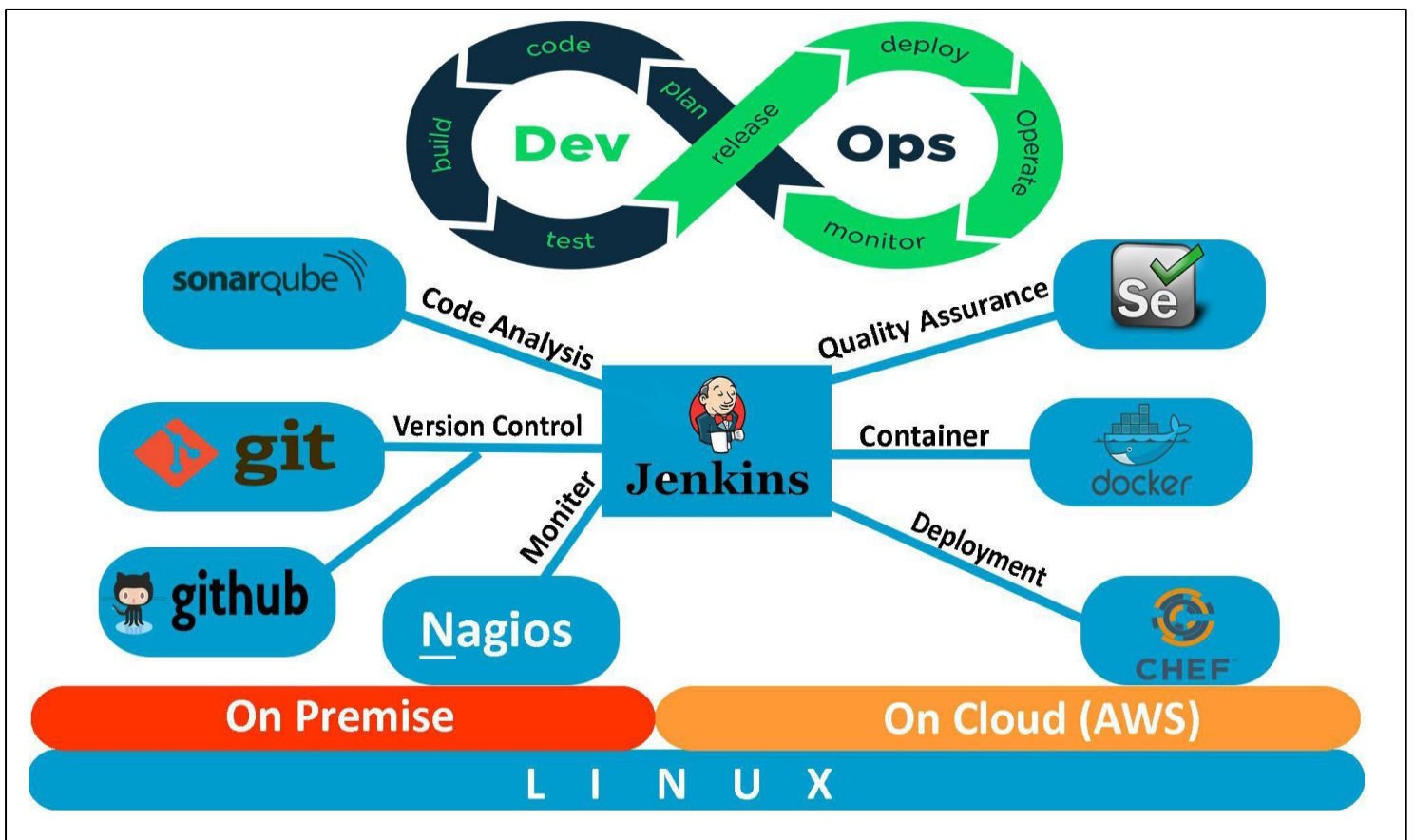


DevOps Course: Skill and Certification Oriented Course

Contents

- Who can do this course
- Prerequisite
- Course Deliverables
- Course Description



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➤ Who can do this course

- Cloud engineers Network administrators Automation Engineers
- Quality Analysts System administrators software developers
- DevOps consultants Stakeholder

➤ Prerequisites

There are no prerequisites for this course but professionals having experience in IT (Development, Operations) will be beneficial.

➤ Course Deliverables

On completions student should be able to do:

- Setup a distributed version control environment using GIT.
- Design and implement branching and merging strategies.
- Create a Dockerized environment.
- Create automation scripts and deploy various environments (development, test staging, Production etc.) using Chef.
- Explain what cloud computing is and provision AWS services.
- Design and implement a CI pipeline using Jenkins for both cloud and non-cloud environment.
- Design and configure Continuous Delivery/Deployment pipeline using Jenkins for both cloud and non-cloud environment.
- Certification covered **Jenkins Certified Engineer**.
- Student can also think of Docker Certified Associate, Certified Chef Developer and AWS Certified DevOps Engineer.

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Course Description	
<p>Module1: Introduction</p> <p>About this course, Introduction, What is DevOps? Q & A What is Continuous Integration? What is Continuous Delivery?</p>	<p>Module4: Version Control System(Gits)</p> <p>Introduction, Versioning, Branches & More Rollback, Git Ssh Login, Git Tags, Semantic Versioning & More Setup GitHub Copilot Git Commands</p>
<p>Module2: Prerequisites Info and Set Up</p> <p>Tools Prerequisite Information Chocolatey for Windows Homebrew for MacOS Installing Software's Tools Prerequisites for Centos 9, RHEL9 & Rocky Linux Tools Prerequisites for Ubuntu 24 Signups AWS Setup Outro</p>	<p>Module 5: Linux</p> <p>Introduction to Linux, Quiz 3: Linux Intro questions Commands and File systems, Quiz 4: Test Basic Command in Linux More Commands (mkdir, cp, mv, touch etc) Vim editor, Quiz 5: Test vim editor File Types, Quiz 6: Test File types,Filters,Quiz 7: Test filters command,Redirections,Quiz 8: Test Redirection, Users and Groups, Quiz 9: Test Users & Group, File permissions, Quiz 10: Test File Permissions ,Sudo,Quiz 11: Sudo quiz Package Management, Quiz 12: Package Management Quiz Services, Quiz 13: Services Quiz,Processes,Quiz 14: Processes quiz Archiving, Ubuntu commands, Quiz 15: Linux OS Quiz Linux Commands</p>
<p>Module3: VM Set Up</p> <p>Welcome to virtualization What is Virtualization? Introduction VM-Manually (Windows & MacOS Intel chip) VM-Automatically (Windows & MacOS Intel chip) VM on MacOS M1 chip Quiz 2: Vagrant & Virtual box</p>	<p>Module 6: Vagrant and Linux Servers</p> <p>Vagrant-vms ,Vagrant IP, RAM & CPU, Vagrant Sync Directories Provisioning, Website Setup, WordPress Setup Automate Website setup, Automate WordPress Setup Copilot AI for Coding, Multi VM Vagrant file Systemctl & Tomcat 10</p>

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<p>Module 7: Variables, JSON and YAML Introduction, Variables & Python DS, JSON & YAML</p>	<p>Module 10: Introducing Containers What are containers? Quiz 19: Container Quiz What is Docker ,Quiz 20: Docker Intro Quiz Hands on Docker Containers Quiz 21: Docker Quiz Vprofile Project on Containers, Micro services Micro service Project</p>
<p>Module 8: V-Profile Project Set up Manual and Automated Welcome to the Project , Introduction VM Setup, MySQL Setup, Memcache Setup RabbitMQ Setup, App setup, Nginx Setup Validate, Automated - Introduction Automated – Code, Automated – Execution Quiz 17: Vprofile Project quiz</p>	<p>Module 11: Bash Scripting Bash Scripts, Introduction, VM Setup, First Script Sample Script,ChatGPT,Variables, Quiz 22: Variables Quiz Command line arguments, System Variables Quiz 23: Arguments Quiz, Quotes Command Substitution, Quiz 24: Quote quiz Exporting Variables, Quiz 25: Variable Quiz User Input, Decision Making part1,Decision Making part2 Quiz 26: Conditions Quiz, Script For Monitoring Loops, Quiz 27: For loop quiz While Loops, Remote Command Execution SSH Key Exchange Finale Part1 Finale Part2</p>
<p>Module 9: Networking ISO Understanding Networks & IP Protocols, ports etc. Networking Commands Quiz 18: Networking Quiz</p>	<p>Module 12: AI for Scripting Autocomplete feature, Apply Best Practices AI Suggestions, Write entire code with AI</p>

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<p>Module 13: AWS part-1</p> <p>What is Cloud Computing, Introduction Ec2 Introduction, Ec2 Quick Start More In Ec2 Part1, More in Ec2 Part2 AWS CLI,EBS,EBS Snapshots,ELB Introduction ELB Hands On, Cloudwatch Introduction, Cloudwatch Hands On,EFS,Autoscaling Group Introduction Auto scaling Group Hands On, S3 Introduction S3 Website Hosting, More in S3, RDS</p>	<p>Module 16 : Build Tools</p> <p>Introduction Maven Hands-on Maven, NodeJS & AI</p>
<p>Module 14: : AWS cloud for Project set-up</p> <p>Introduction, Security Group & Key pairs, EC2 Instances DNS Route 53,Build and Deploy Artifacts, Load Balancer & DNS,Autoscaling Group, Validate & Summarize</p>	<p>Module 17: Continuous Integration and Delivery with Jenkins</p> <p>Introduction, Installation, Freestyle Vs Pipeline As A Code Installing tools in Jenkins, First Job, First Build Job Plugins, Versioning & more, Disk Space Issue Flow of Continuous Integration Pipeline, Steps for Continuous Integration Pipeline, Jenkins, Nexus & Sonarqube Setup, Plugins for CI,Pipeline As A Code, Introduction, Code Analysis, Code Analysis Demonstration Quality Gates, Software Repositories Intro (Nexus) Nexus PAAC Demo, Notification, Slack CI for Docker Intro, Docker PAAC Prereqs info Docker PAAC Demo, Docker CICD Intro Docker CICD Code,AWS ECS Setup Docker CICD Demonstration, Cleanup Build Triggers Intro,Build Triggers Demo Agent/Node/Slave in Jenkins, Using Agent/Node/Slave Authentication & Authorization</p>
<p>Module 15: Re-Architecting Web App on AWS cloud</p> <p>Introduction, Security Group And Key pairs RDS,Elastic Cache, Amazon MQ,DB Initialization Beanstalk Update on Security Group & ELB Build & Deploy Artifact, Cloud front Validate and Summarize</p>	<p>Module18: GitHub Actions</p> <p>Introduction Quick start Part1 Quick start Part2 Triggers and Inputs Artifacts, Conditions & Repo Permissions Security Scan Secrets & Docker Build & Publish Job</p>

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<p>Module 19: GitLab</p> <p>Introduction, Python on Linux, Versions & Indentation Quotes and Comments, Variables, Print Format Slicing, Operators, Conditions Loops, Break & Continue, Built-in Functions or Methods Functions part-1, Functions part-2, Modules OS Tasks, Python Fabric, Exception Handling Cloud Interaction with Boto3, AI for Cloud Automation Copilot AI for Cloud Automation, Python Scripts</p>	<p>Module 22: Ansible</p> <p>Introduction, Setup Ansible & Infra, Inventory & Ping Module, Inventory Part 2, YAML & JSON Ad Hoc Commands, Playbook & Modules Modules - Find, Use, Troubleshoot & Repeat Ansible Configuration, Variables & Debug Group & Host Variables, Fact Variables Decision Making, Loops File, copy & template modules, Handlers Roles, Ansible for AWS, Vprofile code</p>
<p>Module 20: Python</p> <p>Introduction, Python on Linux, Versions & Indentation Quotes and Comments, Variables, Print Format Slicing, Operators, Conditions Loops, Break & Continue, Built-in Functions or Methods Functions part-1, Functions part-2, Modules OS Tasks, Python Fabric, Exception Handling Cloud Interaction with Boto3, AI for Cloud Automation Copilot AI for Cloud Automation, Python Scripts</p>	<p>Module 23: Monitoring And Observability</p> <p>Introduction to Monitoring Why Monitoring is Essential for DevOps Monitoring and Observability Tools Setting Up the Monitoring Environment Loki and Web Server Setup Adding a Node to Prometheus Understanding PromQL (Prometheus Query Language) Connecting Grafana & Prometheus Integrating Slack for Notifications PromQL for Grafana Dashboards Building Grafana Panels and Dashboards Creating Alerts and Thresholds Integrating Loki and Alloy for Logs and Metrics</p>
<p>Module 21: Learn Terraform</p> <p>Introduction, Basics of Terraform Code Structure, Code Structure Part 2 Plan, Apply, Update & Destroy, Variables Provisioners, Outputs, Backend, What Next?</p>	<p>Module 24: AWS Part-2</p> <p>VPC Introduction, VPC Design & Components VPC Setup Details, Default VPC, Create VPC Subnets, Internet Gateway, Route Tables, NAT Gateway Bastion Host, Website in VPC Peering, Terraform for VPC Setup, Ec2 Logs Links, buildspec, Links, S3 policy</p>

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<p>Module 25 : AWS CI/CD Project</p> <p>Introduction Beanstalk RDS & App Setup on Beanstalk Code Commit Code build Build, Deploy & Code Pipeline</p>	<p>Module28: Containerization</p> <p>Introduction ,Overview of Base Image Dockerhub Setup, Setup Docker Engine Dockerhub & Dockerfile References App Image Dockerfile, DB Image Dockerfile Web Image Dockerfile, Docker Compose Build and Run, Summarize Containerizing Microservice Project Build & Run Microservice App</p>
<p>Module 26: Project On Google Cloud</p> <p>Introduction to the GCP vProfile Project Project Architecture Overview Setting Up Your GCP Account & Project Commands in the Source Code Configuring Project Variables VPC, Subnets & Network Setup Firewall Rules & VM Deployment Configuring Cloud SQL & Memorystore Setting Up Cloud DNS Creating a Custom VM Image Building a Managed Instance Group (MIG) Configuring the Global HTTP/HTTPS Load Balancer SSL Certificates, HTTPS & Final DNS Setup Summary and Cleanup</p>	<p>Module 29: Kubernetes</p> <p>Introduction, Minikube for K8s Setup,Kops for K8s Setup Objects and Documentation, Kube Config Pods, Namespace, Different levels of Logging Service, Replica Set, Deployment Command and Arguments, Volumes Config Map, Secret, Ingress, Kubectl CLI & Cheatsheet, Extras, Helm Introduction, Helm Hands On, Helm with AI, Lens Terraform For EKS Setup</p>
<p>Module 27: Docker</p> <p>Introduction Docker Setup Docker commands & concepts Docker Logs Docker volumes Building images Entrypoint and CMD Docker Compose Multi Stage Dockerfile</p>	<p>Module 30: App Deployments On Kubernetes Cluster</p> <p>Introduction Architecture Source Code Overview Secret Persistent Volume for DB [PVC] MySQL App,MySQL Service Memcache App & Service RabbitMQ App & Service Tomcat App & Service IngressK8s Cluster Setup & Source Code Deploy App on K8s Cluster Summarize</p>

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<p>Module 31 : GitOps Project</p> <p>GitOps Introduction Project Architecture Prepare GitHub Repo GitHub Secrets Terraform Code Staging Workflow for Terraform code Main Workflow for Terraform code Workflow for Vprofile app code Docker Build & Publish Deploy to EKS Clean up</p>	<p>Mock Exams (Full Length)</p> <ul style="list-style-type: none">▪ Guidelines for exam▪ Practice Test 1: - Full Length Mock Exam I▪ Practice Test 2: - Full Length Mock Exam II
<p>PROJECT 1:</p>	<p>PROJECT 2:</p>

Resume preparation, Interview Preparation support is included as part of the course. Each student will be assign one individual project to ensure hands-on practical experience.