

Certified DevOps Engineer- Professional Workshop



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About the Course

Certified DevOps Engineer - Professional Workshop is a creation of the experts to give you the real-world knowledge and experience that provides an extra “OOMPH” that makes you stand apart from the crowd in the field of DevOps.

This program empowers you with the crucial aspects of DevOps and upskill you as a Certified DevOps Engineer. This program will enable you to understand the key concepts and application of DevOps tools stack to execute the entire CI/CD pipeline in your project.

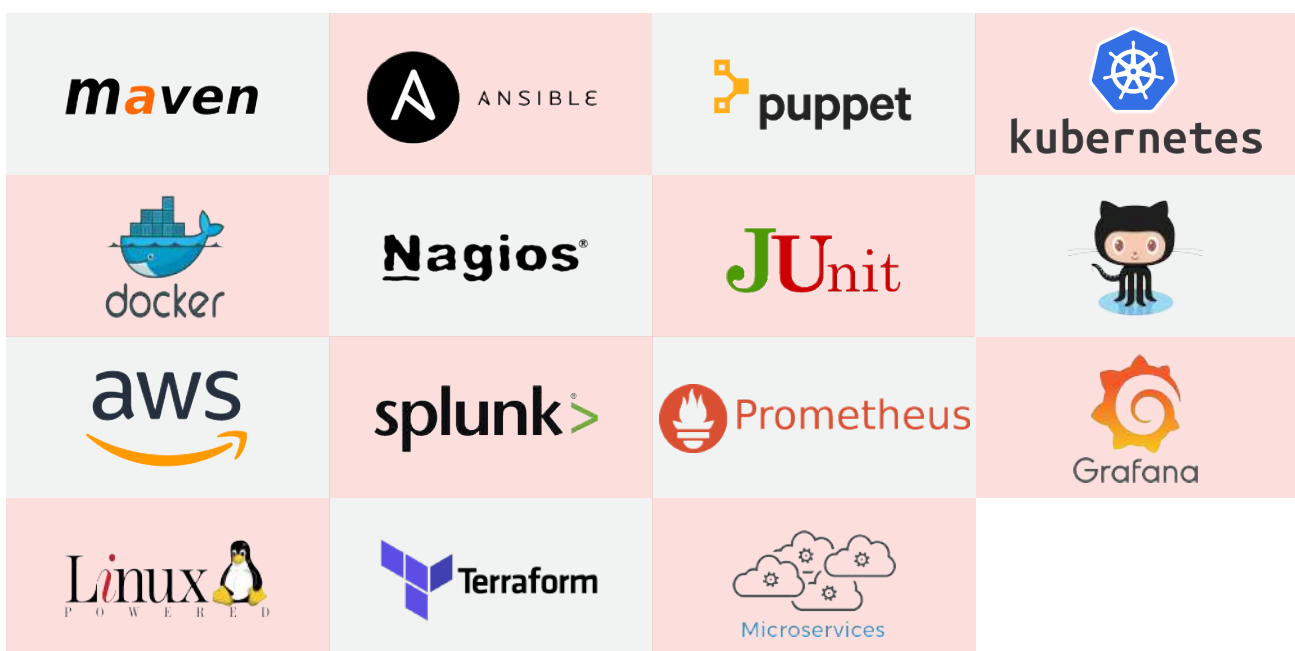
This certification is intricately designed to fuel you with theoretical and practical components of DevOps. As a Certified DevOps Engineer - Professional, you would have the knowledge to implement the latest DevOps methodologies and build software for the real-world situations.

Key Features

-  46 hours of practical oriented training cum workshop
-  Certificate Guidance
-  Flexible Schedule
-  Project Support
-  Placement Assistance
-  Each session followed with exercise and Project Work
-  Industry specific project implementation
-  Doubt Clearing and Technical Support
-  Job Posting
-  CV Building
-  Mock Interview and Tips

Skills and Tools

- Git
- Selenium
- Jenkins
- JUnit
- Terraform
- Docker
- Maven
- Jfrog
- Nagios
- Microservices
- Grafana
- Prometheus
- Puppet
- Chef



Program Outcome

- ✔ Master the working and cycle of DevOps and use software development in real world
- ✔ Become a skilled DevOps practitioner with the ability to give valuable inputs in your projects and organization
- ✔ Understand and build software through a multi-dimensional lens
- ✔ Build a running, industry-aligned project from scratch
- ✔ Opens up a range of career opportunities
- ✔ Learn to work efficiently, streamline workflows and reduce costs in your projects and organization
- ✔ Understand the needs of the enterprise as well as the customer and create win-win situations and provide customer satisfaction

Who should enroll in the program?

- ✔ Software Developers
- ✔ Technical Project Managers
- ✔ Solution Architects
- ✔ Operations Support Engineers
- ✔ Deployment Engineers
- ✔ Software Testers
- ✔ Security Engineers
- ✔ Integration Specialists

Learning

STEP 1

Get familiar and fluent in DevOps methodologies and the core concepts behind CI/CD

- ✓ Understand the basics of the DevOps cycle
- ✓ Become familiar with the terms and concepts of DevOps
- ✓ Comprehend the beginning of the DevOps cycle
- ✓ Know how to use DevOps at organization level
- ✓ Understand how DevOps can help organization reduce costs and increase efficiency in every area
- ✓ Easily understand the concepts of CI/CD
- ✓ Know the basics of testing and security

STEP 2

Git and GitHub

- ✓ Understand what Git and Git Hub is?
- ✓ Understanding the how version control system can be implemented in Devops cycle?

STEP 3

Jenkins and Maven and automating tests

- ✓ Understand and implement Continuous Integration (CI) using tools like Jenkins
- ✓ Learn to manage software lifecycle with Maven

STEP 4

Automate testing of web elements using Selenium suite of tools

- ✓ Learn to test applications with Selenium Framework
- ✓ Understanding the Selenium suite of software including Selenium Remote Control

STEP 5

Understanding Artifactory like Jfrog

- ✓ Get hands on Universal Artifact Management for Devops Acceleration

STEP 6

Learn the importance of Configuration-Management Tools

- ✓ Use imperative language Chef for configuration management
- ✓ Learn to use declarative language Puppet for configurations

STEP 7

Containerization

- ✓ Build and deploy containers using Docker

STEP 8

CI/CD pipeline

- ✓ Set up your entire pipeline
- ✓ Execute CI/CD pipeline using a series of automation tools

STEP 9

Continuous Monitoring

Use and learn following tools to perform Continuous Monitoring

- ✓ Nagios
- ✓ Grafana
- ✓ Prometheus

STEP 10

Terraform

- ✓ Infrastructure as code
- ✓ Setting up Terraform
- ✓ Terraform on AWS
- ✓ Terraform on Google Cloud

STEP 11

Microservices

- ✓ Evolutions of Microservices
- ✓ Developing First Microservices
- ✓ Microservices Testing
- ✓ Deploying Microservices with CICD Pipelines

STEP 12

Real-life scenarios and Case studies

Program Curriculum

1. Linux Fundamental Training (Self-paced)

- ✓ Linux introduction
- ✓ Linux commands and tools, and file operations in Linux
- ✓ User administration
- ✓ Boot and package management
- ✓ Linux process and scripting
- ✓ Security Administration, Shell Scripting and Virtualization
- ✓ Networking

2. Introduction to DevOps

- ✓ What is DevOps?
- ✓ IT Evolution
- ✓ History of DevOps
- ✓ Different Teams Involved
- ✓ DevOps definitions
- ✓ DevOps and Software Development Life Cycle
- ✓ Waterfall Model
- ✓ Agile Model
- ✓ DevOps main objectives
- ✓ Prerequisites for DevOps
- ✓ Continuous Testing and Integration
- ✓ Continuous Release and Deployment
- ✓ Continuous Configuration Management
- ✓ Continuous Application Monitoring
- ✓ DevOps Tool sets

3. Cloud Overview – AWS

- ✓ Introduction to Cloud Computing
- ✓ Introduction to cloud computing world
- ✓ History
- ✓ Cloud business models
- ✓ Public, Private and Hybrid cloud models
- ✓ Advantages of cloud computing
- ✓ AWS Regions and Availability zones. Tools to access services
- ✓ AWS Cloud Setup – Free Tier
- ✓ Overview of the console
- ✓ Aws EC2 (Elastic Compute Cloud)
- ✓ Aws S3 (Simple Storage Service)
- ✓ Security Groups

4. GIT

- ✓ Version Control System
- ✓ Centralized & Distributed Version Control System
- ✓ Anatomy of GIT
- ✓ GIT Features
- ✓ 3-Tree Architecture
- ✓ GITHUB Projects
- ✓ Git Repositories
- ✓ GITHUB Management and Commands
 - ✓ Clone ✓ Checkout ✓ Commit
 - ✓ Push ✓ Merge ✓ Pull Request ✓ Fork/Pull
- ✓ Git Branches
- ✓ Remote branch
- ✓ Local branch
- ✓ Advantages of Git

5. Build tools - Maven

- ✓ Java Compiler
- ✓ Maven Life Cycle
- ✓ Maven Installation
- ✓ Maven build requirements
- ✓ Maven POM XML File

6. Jenkins

- ✓ Getting started with Jenkins
- ✓ Overview
- ✓ How to Take this Course and How to Get Support?
- ✓ About Continuous Integration
- ✓ Introduction to Jenkins and the History of Jenkins
- ✓ Install Java
- ✓ Install Jenkins
- ✓ Jenkins Architecture and Terms of Jenkins
- ✓ Overview of Jenkins UI
 - ✓ Dashboard and Menus
 - ✓ Create Our First Jenkins Job
 - ✓ Run our First Jenkins Job
- ✓ Email configuration, Global Security, Master-Slave Architecture

Continuous Integration (CI) with Jenkins

- ✓ Install Git and Jenkins GitHub Plugin
- ✓ Install Maven on your Local Box
- ✓ Configure Jenkins to Work with Java, Git and Maven
- ✓ Create our First Maven-based Jenkins Project
- ✓ Create our First Maven-based Jenkins Project
 - ✓ CI Pipeline
 - ✓ Compile
 - ✓ CodeReview
 - ✓ UnitTest
 - ✓ CodeCoverage
 - ✓ Package
- ✓ Integration with JFrog and Sonar
- ✓ Run our First Jenkins Build and Jenkins Workspace
- ✓ Trouble Shooting: Run our First Jenkins Build and Jenkins Workspace
- ✓ Triggers in Jenkins

Continuous Delivery (CD) with Jenkins

- ✓ Archive Build Artifacts
- ✓ Install and Configure Tomcat as the Staging Environment
- ✓ The latest Deploy to Container plug-in
- ✓ Jenkins Build Pipeline
- ✓ Parallel Jenkins Build
- ✓ Master and slave
- ✓ Deployment

7. Containerization – Docker

- ✓ Overview & Setup
- ✓ What is docker & why?
- ✓ Docker Editions: Which one should I use?
- ✓ Docker Version Format Change in Early 2017
- ✓ Docker Support for Different OS
- ✓ Docker for Windows
- ✓ Docker for Mac
- ✓ Docker for Linux
- ✓ Docker for Linux Setup and Tips
- ✓ Download Docker CE for your Linux distribution
- ✓ Download Docker Compose

Introduction to Docker Components

- ✓ Docker Hub (Public repo)
- ✓ Docker Trusted Registry (Private repo)
- ✓ Docker Engine
- ✓ Docker Container
- ✓ Docker Image
- ✓ Docker Compose
- ✓ Docker Swarm
- ✓ Docker Services

Docker Images

- ✓ What is in a Docker Image?
- ✓ Official Docker Image Specification
- ✓ Centre for Images: The Docker Hub (Public)
- ✓ List of Official Docker Images
- ✓ Working with Images: image layers, tagging, Pushing to Docker Hub
- ✓ Building Images: The Dockerfile Basics
- ✓ Build Your Own Dockerfile and Run Containers

Docker Containers & Internals

- ✓ Container vs VM
- ✓ Detached and Interactive Modes
- ✓ What Happens When We Run a Container?
- ✓ What's Going on In Containers: CLI Process Monitoring
- ✓ Getting a Shell Inside Containers
- ✓ Container Lifetime & Persistent Data Using Volumes
- ✓ Docker container Networking, default & user defined networks

Docker Compose

- ✓ Spin up multiple containers with Single command
- ✓ Docker Compose and the docker-compose.yml File
- ✓ Running Compose Commands
- ✓ Adding Image Building to Compose Files

8. Docker-Swarm

- ✓ Introduction to Swarm & Advantages
- ✓ How to create a swarm (cluster of nodes)?
- ✓ How to add nodes to swarm?
- ✓ How to deploy services/containers to swarm?
- ✓ Docker stack deploy
- ✓ Introduction to UCP (Universal Control Pane)

9. Kubernetes

- ✓ What and why is Kubernetes?
- ✓ Comparison with Docker Swarm
- ✓ Installation
- ✓ Components and Terminology
- ✓ Masters and Nodes
- ✓ Pods
- ✓ Replications
- ✓ Services
- ✓ Deployment

10. Configuration Management – Ansible

- ✓ Introduction
- ✓ Ansible Server / Ansible Controller
- ✓ Ansible and Infrastructure Management
- ✓ Ansible Server Configuration file
- ✓ How Ansible picks the configuration?
- ✓ Update MISC parameters
- ✓ Ansible Inventory
 - ✓ Ungrouped Hosts
 - ✓ Grouped Hosts
 - ✓ Groups of Groups
- ✓ Checking connection to remote nodes o SSH Keys
 - Using username/password
- ✓ Ansible Facts
- ✓ Ansible Playbooks
 - ✓ 'hosts' parameter
 - ✓ 'become' parameter
 - ✓ 'gather_facts' parameter
 - ✓ 'tasks' parameter
- ✓ Conditions
- ✓ Loops
 - ✓ with_items
- ✓ How to store output of one task and use it in another task?
- ✓ Variables

- ✓ Roles
- ✓ MISC
 - ✓ Ansible Vault
 - ✓ Ansible Pull
 - ✓ Ansible Galaxy
- ✓ Ansible AWX (Tower)
- ✓ Use cases and Examples
- ✓ Overview of Puppet
- ✓ Comparison of Ansible and Puppet

11. Logging - Splunk

- ✓ What Is Splunk?
- ✓ About Machine Data
- ✓ What does Splunk Do?
- ✓ Why Splunk?
- ✓ Understanding Splunk Architecture & its Components
- ✓ Installation of Splunk and Forwarder
- ✓ Splunk Search
- ✓ Use cases and Examples

12. Infrastructure Monitoring - Nagios

- ✓ Infrastructure monitoring Intro
- ✓ Nagios Core vs XI
- ✓ Setting up Nagios
- ✓ Configuring Windows & Linux Hosts
- ✓ Configuring Alerts and Email Notifications
- ✓ Plugins
- ✓ Introduction to Prometheus and Grafana
 - ✓ Container monitoring with Prometheus and Grafana

13. CI/CD Pipeline with Jenkins Pipeline as code

- ✓ Introduction to JPaC
- ✓ Types of JPaC
 - ✓ Declarative
 - ✓ Scripted
- ✓ Pipeline as a code basics
- ✓ Building a basic CI pipeline as code for Java app
- ✓ Building a job from pipeline code present in GIT repo
- ✓ Executing parallel stages in a pipeline
- ✓ Generating pipeline script & directives using Jenkins inbuilt generators

14. Terraform

- ✓ Introduction to Configuration Management
- ✓ Introduction to Provisioning
- ✓ Infrastructure as a code
- ✓ About Terraform
- ✓ Setting up Terraform
- ✓ Understanding HCL
- ✓ Basics of Terraform — variables, templates, modules & commands
- ✓ Terraform for Local Changes
- ✓ Terraform on AWS
- ✓ Terraform on Google Cloud

15. Microservices

- ✓ Evolution of Microservices
 - ✓ Monolithic Architecture
 - ✓ Service Oriented Architecture
 - ✓ What is Microservice
 - ✓ SOA vs Microservice
- ✓ Microservice Develop
 - ✓ Write First Microservice
- ✓ Microservice Testing
 - ✓ Testing Scenarios and Strategy
 - ✓ Test at Different levels
- ✓ Deploying Microservice
 - ✓ Setting Up CICD pipeline
 - ✓ Touchless Deployment to Prod Environment

Certificate

CERTIFIED DEVOPS ENGINEER - PROFESSIONAL BY DEVOPS UNIVERSITY

John Smith

Has successfully completed the DevOps University's DevOps Certification requirements and is recognized as a Certified DevOps Engineer - Professional

Certificate Id : 0123456789

Validation at : devopsuniversity.org/validate



Name
Designation



DEVOPS UNIVERSITY
DELIVERY REINVENTED

Issue Date

An initiative by ISATB Services Pvt. Ltd.



About DevOps University

DevOps University is an autonomous organization which promotes DevOps by bringing all communities together to share their knowledge at a single platform.

DevOps University provides DevOps Courses through its accredited partners and grants valuable DevOps Certifications to IT professionals and prospects, who want to excel or build their career in the emerging world of DevOps. These certifications not only assess your deep knowledge on DevOps but are available with a minimal cost.

We partner with individuals, IT prospects, organizations and provide customized trainings, workshops and consultancy as per their training & business needs.

DevOpsUniversity.org provides DevOps technical Workshops and Bootcamps through their accredited partners only, who believes in their philosophy. These Workshops and Bootcamps are concluded with a Certification from DevOps University.

DevOps University's portfolio of **DevOps Certifications** are well structured by keeping the need of an emerging DevOps market and to empower you and your organization to address dynamic need of customers. Certified DevOps Executive are for senior leaders and executives, Certified DevOps Engineer for development team and Certified DevOps Architect for DevOps engineers are widely accepted certifications across IT industry.

World's Only Experiential DevOps Learning Platform!

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5000+

CERTIFICATIONS
AWARDED



6

CONTINENTS



70+

COUNTRIES



250+

DEVOPS
COMMUNITY



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