



# Implementing DevOps Solutions and Practices Using Cisco Platforms (DEVOPS)

Course ID #: 7000-250-ZZ-Z

Hours: 35

## Course Content

### Course Description:

Implementing DevOps Solutions and Practices Using Cisco Platforms (DEVOPS) is a 5-day course which teaches students how to automate application deployment, enable automated configuration, enhance management, and improve scalability of cloud microservices and infrastructure processes on Cisco® platforms. Students will also learn how to integrate Docker and Kubernetes to create advanced capabilities and flexibility in application deployment.

### At Course Completion:

After completing this course, student will be able to:

- Describe the DevOps philosophy and practices, and how they apply to real-life challenges
- Explain container-based architectures and available tooling provided by Docker
- Describe application packaging into containers and start building secure container images
- Utilize container networking and deploy a three-tier network application
- Explain the concepts of configuration item (CI) pipelines and what tooling is available
- Implement a basic pipeline with Gitlab CI that builds and deploys applications
- Implement automated build testing and validation
- Describe DevOps principles applied to infrastructure
- Implement on-demand test environments and explain how to integrate them with an existing pipeline
- Implement tooling for metric and log collection, analysis, and alerting
- Describe the benefits of application health monitoring, telemetry, and chaos engineering in the context of improving the stability and reliability of the ecosystem
- Describe how to implement secure DevOps workflows by safely handling sensitive data and validating applications
- Explain design and operational concepts related to using a mix of public and private cloud deployments
- Describe modern application design and microservices architectures
- Describe the building blocks of Kubernetes and how to use its APIs to deploy an application
- Explain advanced Kubernetes deployment patterns and implement an automated pipeline
- Explain how monitoring, logging, and visibility concepts apply to Kubernetes

### Prerequisites:

- Basic programming language concepts and familiarity with Python
- Basic understanding of compute virtualization
- Ability to use Linux, text-driven interfaces, and CLI tools, such as Secure Shell (SSH), bash, grep, ip, vim/nano, curl, ping, traceroute, and telnet



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- Foundational understanding of Linux-based OS architecture and system utilities
- CCNA® level core networking knowledge
- Foundational understanding of DevOps concepts
- Awareness and familiarity with continuous integration, continuous deployment, and continuous delivery (CI/CD) concepts
- Hands-on experience with Git

## Target Student:

- Account manager
- Consulting systems engineer
- Network administrator
- Network engineer
- Network manager
- Sales engineer
- Systems engineer
- Technical solutions architect
- Wireless design engineer
- Wireless engineer

## Topics:

**Introducing the DevOps Model**

**Introducing Containers**

**Packaging an Application Using Docker**

**Deploying a Multitier Application**

**Introducing CI/CD**

**Building the DevOps Flow**

**Validating the Application Build Process**

**Building an Improved Deployment Flow**

**Extending DevOps Practices to the Entire Infrastructure**

**Implementing On-Demand Test Environments at the Infrastructure Level**

**Monitoring in NetDevOps**

**Engineering for Visibility and Stability**

**Securing DevOps Workflows**

**Exploring Multicloud Strategies**

**Examining Application and Deployment Architectures**

**Describing Kubernetes**

**Integrating Multiple Data Center Deployments with Kubernetes**

**Monitoring and Logging in Kubernetes**