



Architecting DevOps & amp; DevSecOps CI / CD Pipelines and Automations

- 4 Day Course
- Lecture and Hands-on Labs

Course Overview

This course covers what attendees need to design successful CI / CD pipelines using a variety of popular platforms including GitHub Actions, GitLab CI/CD, and Jenkins. Students will write a variety of code including Python and Ansible scripting, that will trigger a variety of automated behaviors upon git commits and pull (or merge) requests. Some of the triggered DevOps automations include testing, running scripts, building and releasing containerized services. DevSecOps paradigms include running security apps such as password and token detection, as well as other popular DAST and SAST tools.

Review this course online at https://www.alta3.com/courses/cicd

Who Should Attend

- DevOps Engineers
- Software Developers
- Marketing and Sales Engineers
- Telecommunications Professionals
- Managers and Directors
- Quality Assurance & Site Reliability Professionals

What You'll Learn

- Building custom Continuous Integration (CI) and Continuous Deployment (CD) workflows
- Take control of project flows build Python, Ansible, and GoLang applications
- Practice team collaboration methods for projects and advancing code
- How Git and GitHub actions can trigger builds, testing, and deployment of container images to production environments, such as Azure App service, and Kubernetes
- DAST and SAST tools relating to DevSecOps practices
- AI LLM prompt engineering for relevant configuration snippets and solutions

Outline

Intro

- 🖳 Lecture + Lab: Introduction to Git
- \Box Lecture + Lab: Git Branching

Core Git Concepts

- \blacksquare Lecture + Lab: Revision Control with GitHub
- \Box , Lecture + Lab: Pull Requests
- \blacksquare Lecture + Lab: Collaborating with the Team
- \Box Lecture + Lab: GitHub Desktop

Core CI / CD Concepts

- 🕮 Lecture: Intro to DevOps
- \Box Lecture + Lab: Docker Containers
- 🖳 Lecture + Lab: Dockerizing A Python Flask App or Creating A Container Image

GitHub Actions

- 🖳 Lecture + Lab: GitHub Actions Automatically Triggered Events
- \blacksquare Lecture + Lab: GitHub Actions Manually Triggered

GitLab

- 🗐 Lecture: Up and Running with GitLab
- 🖳 Lecture + Lab: Generating and Using SSH Keys
- 🖳 Lecture + Lab: Git and GitLab Interaction
- 🖳 Lecture + Lab: Fixing Merge Conflicts
- 🕮 Lecture: Writing Markdown in GitLab
- 🗐 Lecture: GitLab Project Wikis
- 🖳 Lecture + Lab: GitLab Collaboration
- 🖳 Lecture + Lab: GitLab Webhooks
- \Box Lecture + Lab: GitLab API Calls

GitLab CI CD

- 🖳 Lecture + Lab: Introduction to CI CD
- 🖳 Lecture + Lab: Building a Docker Image
- 🖳 Lecture + Lab: Creating gitlab-ci.yml
- 🖳 Lecture + Lab: Lifecycling a GoLang App with GitLab
- 🗐 Lecture: GitLab Container Repository
- \blacksquare Lecture + Lab: GitLab Integration with Kubernetes Clusters

DevSecOps

- \blacksquare Lecture: Intro to DevOps
- \blacksquare Lecture + Lab: GitHub Actions GitLeaks
- \Box Lecture + Lab: GitHub Actions Terraform
- 🖳 Lecture + Lab: GitLab gitlab-ci.yml DevSecOps as a Service

Jenkins Basics

- 🖳 Lecture + Lab: Deploying Jenkins with Docker
- \blacksquare Lecture: Jenkins Dashboard
- 🖳 Lecture + Lab: Freestyle Projects and Workspaces
- \Box Lecture + Lab: Triggering Jenkins Builds with WebHooks
- \Box Lecture + Lab: Installing Jenkins Plugins

Scripting

- \Box Lecture + Lab: Docker Build Agents
- \blacksquare Lecture + Lab: Python Builds
- \blacksquare Lecture + Lab: Ansible Builds

$\mathrm{CI}\,/\,\mathrm{CD}$

- \blacksquare Lecture: Continuous Integration
- 🖳 Lecture + Lab: Creating Jenkins Scripted Pipelines
- \blacksquare Lecture: Declarative vs Scripted Pipelines
- \blacksquare Lecture: Jenkins REST API

Ansible

- \blacksquare Lecture: Ansible Overview
- \Box Lecture + Lab: Understanding YAML
- \Box Lecture + Lab: Introduction to Playbooks
- \blacksquare Lecture + Lab: Playbooks and Variables
- \blacksquare Lecture: Ansible Modules
- \blacksquare Lecture + Lab: Architecting Pipelines with Ansible

Capstone

- 🖳 Lecture + Lab: Architecting a GitHub CI / CD Pipeline
- 🖳 Lecture + Lab: Architecting a GitLab CI / CD Pipeline
- \blacksquare Lecture + Lab: Webhooking Jenkins for CI / CD Automation

Next Courses

- Jenkins Automation Server Essentials (2 Days)
- Kubernetes Bootcamp (5 days)
- Python 201 API and API Design (5 days)
- Go 101 Go Programming (5 days)

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