Information Technology

GitLab CI CD for Beginners

Course Introduction

Welcome to "GitLab CI/CD for Beginners," a five-day course designed to introduce professionals to the world of continuous integration and deployment using GitLab. As organizations increasingly adopt DevOps practices, mastering GitLab's CI/CD capabilities becomes essential for automating software delivery processes. This course provides a foundational understanding of GitLab's architecture, .gitlab-ci.yml syntax, and pipeline configurations, enabling you to build efficient workflows for modern software development.

Through interactive sessions and hands-on labs, you will explore the full lifecycle of CI/CD pipelines, from source code management to automated testing and deployment. You will learn how to integrate tools like Docker, Kubernetes, and Terraform into your pipelines, ensuring seamless collaboration between development and operations teams. The course also covers advanced topics such as environment-specific deployments, rollback strategies, and pipeline optimization.

By the end of this course, you will have the skills to design, implement, and manage GitLab CI/CD pipelines that align with industry standards. Whether you are a beginner or an experienced professional, this course offers valuable insights into automating workflows, improving code quality, and delivering software reliably and safely. With GitLab as your tool of choice, you will be well-prepared to contribute to your organization's DevOps transformation.

Target Audience

This course is ideal for developers, testers, and DevOps engineers who want to leverage GitLab for CI/CD. It is also suitable for beginners looking to understand CI/CD principles and apply them practically.

Learning Objectives

- Understand the principles of CI/CD and their implementation in GitLab.
- Design and configure .gitlab-ci.yml files for various use cases.
- Automate builds, tests, and deployments using GitLab pipelines.
- Manage environment-specific configurations and secrets.
- Optimize pipeline performance and troubleshoot common issues

Course Outline

- **Day 01**

  Foundations of GitLab CI/CD

  - Introduction to CI/CD
    - Definition and benefits of CI/CD.
    - Overview of GitLab's CI/CD features.
  - Introduction to GitLab
    - GitLab architecture and components.
    - Setting up GitLab repositories and projects.
  - Interactive Session
    - Hands-on exercise: Configure a basic .gitlab-ci.yml file.
- **Day 02**

  Building Basic Pipelines

  - Understanding .gitlab-ci.yml
    - Syntax and structure of pipeline configuration files.
    - Defining stages, jobs, and scripts.
  - Automating Builds
    - Configuring build triggers and dependencies.
    - Integrating source code management (SCM).
  - Practical Exercise
    - Create a simple pipeline for a sample application.

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Building Basic Pipelines

- **Day 03**

Testing and Quality Assurance

- Integrating Automated Tests
  - Adding unit tests and integration tests to pipelines.
  - Publishing test results and handling failures.
- Static Code Analysis
  - Using tools like ESLint or SonarQube for code quality checks.
- Role Play
  - Implement a test suite in your pipeline.

- **Day 04**

Deploying Applications

- Configuring Deployment Stages
  - Setting up environments (development, staging, production).
  - Managing environment-specific variables.
- Rolling Back Deployments
  - Strategies for safe rollbacks.
- Group Activity
  - Deploy a sample application to multiple environments.

- **Day 05**

Advanced Topics and Best Practices

- Securing Pipelines
    - Protecting sensitive data with GitLab secrets.
    - Enforcing access controls.
- Scaling Pipelines
    - Optimizing resource usage with parallel jobs.
- Real-World Case Studies
    - Analyzing successful GitLab CI/CD implementations.
- Final Project Presentation: End-to-end CI/CD Pipeline

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 20, 2025	April 24, 2025	5 days	2150.00 $	Virtual - Online
July 20, 2025	July 24, 2025	5 days	4250.00 $	KSA - Riyadh
Oct. 6, 2025	Oct. 10, 2025	5 days	4250.00 $	UAE - Dubai