

GitLab CI - A Complete Hands-On CI/CD Pipeline

Duration: 4 days (32 hours)

Prerequisite: Linux, DevOps, containers and knowledge of CI/CD (basic)

Applications Required: Git, Gitlab and Docker.

DC: Koenig DC and User's own Gitlab account

Courseware: Unofficial (PDF)

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Module 1: Introduction to CI/CD

- Understanding CI/CD
- CI/CD terms
- SDLC and traditional approach
- Why CI/CD

Module 2 –Introduction to GitLab

- Gitlab working
- Gitlab UI
- Project in Gitlab

Lab: All above topics with demonstration

Module 3 – Pipeline

- Pipeline
- Setting up Git branches
- Creating and executing first pipeline
- Understanding logs of pipeline

Lab: All above topics with demonstration

Module 4 – Pipeline Indepth

- Creating Nodejs project
- Building application with pipeline
- Pipeline stages
- Running job as background process
- Saving artifact
- Optimizing pipeline

Lab: All above topics with demonstration

Module 5 – GitLab Runners

- Introduction to GitLab Runners
- Shared GitLab Runners
- GitLab Runners installation
- GitLab Runners installation on local machine

Lab: All above topics with demonstration

Module 6 – Run Pipelines using Local Runners

- Create python project and Dockerfile
- Gitlab pipeline for building image
- Run pipeline on local machine

Lab: All above topics with demonstration

Module 7 – Variables in GitLab

- Variables in Gitlab
- Predefined variables
- Creating custom variables

Lab: All above topics with demonstration

Module 8 – Project - Create GitLab CI Pipeline

- Smoke test using pytest
- Smoke test using pytest
- Adding testing stage in pipeline
- Adding build stage in pipeline
- Adding push stage in pipeline

Lab: All above topics with demonstration

Module 9 – Project - Create GitLab CD Pipeline (Deployment to Heroku)

- Heroku introduction
- Deployment to staging environment
- Deployment to production environment
- Using PostSync and SyncFail hook
- Using PostDelete hook

Lab: All above topics with demonstration

Module 10 – Job Templating

- Intro to Job templating
- YAML
- Implement job template
- Run job template pipeline

Lab: All above topics with demonstration

Module 11 – Miscellaneous

- Lint tool in Gitlab
- How to schedule pipeline
- Timeout in Gitlab

Lab: All above topics with demonstration