

# ArgoCD Essential

**Duration: 2 Days (8hrs/day)**

**Prerequisites:**

- Basic knowledge of Git
- Basic Kubernetes Knowledge

**Course Objective:** This course will help you learn the fundamentals of GitOps, ArgoCD, and various associated tools. You'll gain practical skills in setting up ArgoCD, managing applications, projects, and repositories. Additionally, you'll explore synchronization policies, tracking strategies, diffing customization, and advanced concepts like sync phases, waves, and remote Kubernetes clusters. By the end of the course, you'll be equipped to effectively implement GitOps practice.

**Kubernetes and ArgoCD Version:** Latest

**Lab Requirement:** Koenig DC (CentOS)

## **Module 1 – Core Concepts**

What is GitOps

Introduction to ArgoCD

ArgoCD Architecture Overview

## **Module 2 – Setting-Up Argo CD**

Installation Options

Lab: Non-HA Setup

Lab: Getting Initial Admin Password

Accessing ArgoCD Server

Lab: Access ArgoCD Server using Port-Forward

Install ArgoCD CLI

Lab: Installing CLI

## **Module 3 - Applications**

Defining Applications

Lab: Creating an Application Declaratively using Yaml

Lab: Creating an Application using Web UI

Lab: Creating an Application using CLI

Tools Detection

Helm Options

Lab: Helm Options

Directory of Files Options

Lab: Directory Options

Kustomize Options

Lab: Kustomize Options

Multiple Sources for an Application

#### **Module 4 - Projects**

Why Projects

Creating Project

Lab: Creating Basic Project

Lab: Creating a Project with Allowing Specific Destinations

Project Roles

Lab: Project Roles

#### **Module 5 - Repositories**

Private Git Repos

Lab: Private Repos using HTTPS

Lab: Private Repos using SSH

Private Helm Repos

Credential Templates

Lab: Credential Templates

#### **Module 6 – Sync Policies and Options**

Automated Sync

Lab: Automated Sync

Automated Pruning

Lab: Automated Self Healing

Sync Options

Lab: No Prune at Resources Level

Lab: Selective Sync

Lab: Fail on Shared Resources

Lab: Replace Resources

## **Module 7 – Tracking Strategies**

Tracking Strategies

Lab: Tracking Git Tag

Lab: Tracking Git Commit SHA

Lab: Tracking HEAD

Lab: Tracking Helm Chart Range of Versions

Lab: Tracking Helm Chart Latest Version

## **Module 8 – Diffing Customization**

Diffing Customization

Lab: Diffing Customization

Lab: Deffing Customization, Istio Case

## **Module 9 – Sync Phrases and Waves**

Sync Phases and Hooks

Lab: Resource Hooks (Sync Phases)

Sync Waves

Lab: Sync Waves

## **Module 10 – Remote Kubernetes Clusters**

Defining K8s Clusters

Lab: Remote Clusters

## **Module 11 – Application Set**

What is ApplicationSet

Generators

Lab: List Generator

Lab: Cluster Generator

Lab: Git Directory Generator

Lab: Matrix Generator

Pull Request Generator

Lab: Pull Request Generator