# Jenkins with Docker and Kubernetes

**Duration:** 3 Days

**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.

**Prerequisites:**
- Basic Linux Knowledge
- Knowledge of Docker and Kubernetes is required

## Module 1 – Introduction to Jenkins

Introduction to Jenkins
Jenkins Installation

## Module 2 – Git

Introduction to Version Control System
History of Git
Git Basics
States in Git
Installing Git
Configuration of Git
Working with Repositories
Basic Git Commands
Working with Remotes
Tagging
Git Branching

## Module 3 – Building a Web Application Docker Image

Use Docker file to build docker build image
Push Image to Docker Hub Manually

## Module 4 – Integrate Jenkins with Docker

Connect Registry with Jenkins
Automatically Build and Push Image to Docker Hub Whenever Developer Changes Application Code

## Module 5 – Integrate Jenkins with Kubernetes

Connect Jenkins with Kubernetes
Configure CI/CD to automatically build, push image then deploy to Kubernetes

## Module 6 – Email Integration

Install Mailer Plugin in Jenkins
Integrate Gmail with Jenkins to Send Report Email

## Module 7 – Jenkins Logging and Monitoring

Integrate ELK with Jenkins to Store Logs
Integrate Prometheus and Grafana to Monitor Jenkins