

# Google Kubernetes Engine for Developers Essentials

## Key information

Course code	Google Kubernetes Engine for Developers Essentials
Course version	1.0
Course title	Google Kubernetes Engine for Developers Essentials
Description	This course provides a comprehensive introduction to Google Kubernetes Engine (GKE) and its essential concepts for cloud developers. Participants will explore containerization with Docker, Kubernetes architecture, and GKE deployment best practices. The course includes hands-on activities and demos to facilitate practical understanding and skill development in deploying and managing containerized applications on Google Cloud.
What you'll learn	<ul style="list-style-type: none"><li>Understand the fundamentals of containers and Kubernetes.</li><li>Learn to build Docker images and apply best practices.</li><li>Gain knowledge of Kubernetes architecture and object management.</li><li>Master Kubernetes deployment strategies and best practices on GKE.</li></ul>
Duration	3 hours
Level	Intermediate
Format	Instructor-led

## Content overview

Who this course is for	Cloud developers seeking to deploy and manage containerized applications on Google Cloud.
Total modules	6

Total videos	0
Total Labs	0
Total classroom activities	0
Prerequisites	Basic cloud computing concepts, software development experience.
Products	Google Kubernetes Engine
Not covered	Application development basics

## Content breakdown

### Part 1: Introduction to Containers and Kubernetes

Module 1 title	Introduction to Containers
Module 1 topics	<ol style="list-style-type: none"> <li>1. What are containers and why use them?</li> <li>2. Containerization vs. Virtualization</li> <li>3. Benefits of using containers</li> </ol>
Module 1 activities	none
Module 2 title	Introduction to Docker
Module 2 topics	<ol style="list-style-type: none"> <li>1. What is Docker and its components?</li> <li>2. Docker images and containers</li> <li>3. Dockerfile basics and instructions</li> </ol>
Module 2 activities	none
Module 3 title	Building Docker Images
Module 3 topics	<ol style="list-style-type: none"> <li>1. Hands-on: Building a Docker image with Python</li> <li>2. Hands-on: Building a Docker image with Java using Maven</li> </ol>
Module 3 activities	2 use case demos

## Part 2: Kubernetes Deployments and Best Practices

<b>Module 1 title</b>	Kubernetes Architecture
<b>Module 1 topics</b>	<ol style="list-style-type: none"><li>1. Kubernetes cluster components</li><li>2. Pods, Deployments, Services, and Namespaces</li><li>3. Kubernetes object management</li></ol>
<b>Module 1 activities</b>	none
<b>Module 2 title</b>	Kubernetes Deployment Best Practices
<b>Module 2 topics</b>	<ol style="list-style-type: none"><li>1. Creating and managing Deployments</li><li>2. Rolling updates and rollbacks</li><li>3. Health checks and probes (Liveness, Readiness, Startup)</li></ol>
<b>Module 2 activities</b>	none
<b>Module 3 title</b>	Securing Kubernetes Deployments
<b>Module 3 topics</b>	<ol style="list-style-type: none"><li>1. Kubernetes security best practices</li></ol>
<b>Module 3 activities</b>	none