



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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CODE:	LENGTH:	PRICE:
VMW_KFCO	32 Hours (4 days)	€1,600.00

## Description

This four-day course is the first step in learning about Containers and Kubernetes Fundamentals and Cluster Operations. Through a series of lectures and lab exercises, the fundamental concepts of containers and Kubernetes are presented and put to practice by containerizing and deploying a two-tier application into Kubernetes.

## Objectives

By the end of the course, you should be able to meet the following objectives:

- Build, test, and publish Docker container images
- Become familiar with YAML files that define Kubernetes objects
- Understand Kubernetes core user-facing concepts, including pods, services, and deployments
- Use kubectl, the Kubernetes CLI, and become familiar with its commands and options
- Understand the architecture of Kubernetes (Control plane and its components, worker nodes, and kubelet)
- Learn how to troubleshoot issues with deployments on Kubernetes
- Apply resource requests, limits, and probes to deployments
- Manage dynamic application configuration using ConfigMaps and Secrets
- Deploy other workloads, including DaemonSets, Jobs, and CronJobs
- Learn about user-facing security using SecurityContext, RBAC, and NetworkPolicies

## Audience

Anyone who is preparing to build and run Kubernetes clusters

## Prerequisites

- Linux concepts and command line proficiency
- General networking proficiency

## Programme

1. Course Introduction:	2. Containers:	3. Kubernetes Overview:	4. Beyond Kubernetes Basics:
• Introductions and objectives	• What and Why containers	• Kubernetes project	• Kubernetes objects
5. Kubernetes Networking:	• Building images	• Plugin interfaces	• YAML
• Networking within a pod	• Running containers	• Building Kubernetes	• Pods, replicas, and deployments
• Pod-to-Pod Networking	• Registry and image management	• Kubectl CLI	• Services
• Services to Pods			• Deployment management
• ClusterIP, NodePort, and LoadBalancer	6. Stateful Applications in Kubernetes:		• Rolling updates
• Ingress controllers	• Stateless versus Stateful		• Controlling deployments
• Service Discovery via DNS	• Volumes		• Pod and container configurations
	• Persistent volumes claims	7. Additional Kubernetes Considerations:	
	• StorageClasses	• Dynamic configuration	
	• StatefulSets	• ConfigMaps	
		• Secrets	
		• Jobs, CronJobs	

- 8. Security:
  - Network policy
  - Applying a NetworkPolicy
  - SecurityContext
  - runAsUser/Group
  - Service accounts
  - Role-based access control
- 9. Logging and Monitoring:
  - Logging for various objects
  - Sidecar logging
  - Node logging
  - Audit logging
  - Monitoring architecture
  - Monitoring solutions
  - Octant
  - VMware vRealize® Operations Manager™
- 10. Cluster Operations:
  - Onboarding new applications
  - Backups
  - Upgrading
  - Drain and cordon commands
  - Impact of an upgrade to running applications
  - Troubleshooting commands
  - VMware Tanzu™ portfolio overview

## Session Dates

On request. Please [Contact Us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)