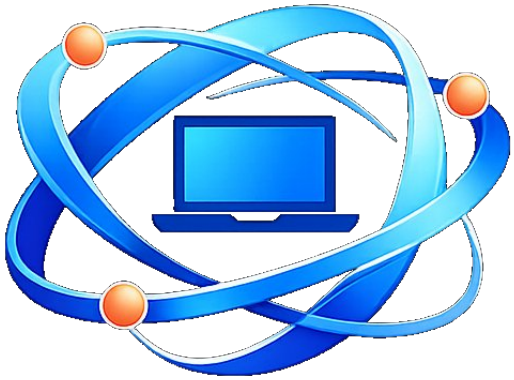

MFE-IT

Reference: 2B/EN/KI

# Kubernetes Training Course

## Drive Robust, Scalable and Automated Cloud-Native Architectures

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*Duration: 4 Days | Hours: 28 h*

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*Remote · Sessions guaranteed from 1 registrant · 60% hands-on practice*

## DESCRIPTION

Kubernetes has become the go-to solution for container orchestration in modern environments. It allows you to deploy, scale and manage your applications automatically, in a resilient and decentralised manner.

This training course offers a comprehensive overview of Kubernetes, ranging from fundamental concepts to advanced cluster management. You will learn how to orchestrate your services, manage configurations, monitor cluster status, automate deployments and secure your workloads.

## LEARNING OBJECTIVES

By the end of this training course, participants will be able to:

- Understand the architecture and key components of Kubernetes (pods, nodes, services)
- Deploy containerised applications in a cluster
- Manage configurations, secrets, volumes and resources
- Implement scaling, restart and high availability strategies
- Orchestrate automated deployments and rollbacks
- Secure and monitor your cluster with integrated tools (RBAC, monitoring)

## PREREQUISITES

- Good knowledge of Linux command line
- Proficiency in Docker and containerisation concepts
- Basic understanding of networks, microservices and application deployments

> *Because each participant is unique, a personalised interview is systematically organised in advance with our expert to design a training programme perfectly aligned with their objectives, level and professional challenges.*

## TARGET AUDIENCE

Developers, administrators, DevOps engineers and architects who want to industrialise their container management with Kubernetes.

# DETAILED PROGRAMME

> The training alternates between theoretical input and hands-on practice (approximately 60% of the time). Modules are built around practical exercises based on real-world business use cases.

## Module 1 – Introduction to Kubernetes

- History and positioning within the DevOps ecosystem
- Comparison with Docker Swarm and other orchestrators
- Distribution choices: AKS, EKS, GKE, OpenShift, k3s

## Module 2 – Architecture and fundamental components

- Nodes, pods, services and namespaces
- Controllers and the control plane
- How a cluster works end to end

## Module 3 – Application deployment

- YAML manifest structure
- kubectl commands for daily operations
- Deployment strategies and rolling updates

## Module 4 – Configuration and volume management

- ConfigMaps and Secrets
- Persistent volumes and claims
- Storage classes and dynamic provisioning

## Module 5 – Networking and services

- ClusterIP, NodePort and LoadBalancer
- Ingress controllers and routing strategies
- Network policies and service-to-service security

## Module 6 – Security and access management

- Authentication and authorisation
- RBAC, quotas and contexts
- Pod security and policy enforcement

### Module 7 – Supervision, observability and CI/CD

- Monitoring with Prometheus and Grafana
- Centralised logs and audit
- Integration with GitLab CI, Jenkins and Helm-driven deployments

## TEACHING METHODS

### Format and Delivery

The training is delivered remotely via an interactive virtual classroom. It can also be delivered on-site, with content customised to match the needs of your professional project. The theory/practice split is approximately 40%/60%.

### MFE-IT Ultra-Personalised Format

Each session accommodates between 1 and 3 participants, ensuring highly individualised support. A preliminary interview allows us to tailor the content to each participant's profile. Inter-company sessions are guaranteed from just 1 registrant (except in cases of force majeure).

### Skills Assessment

Throughout the training, the trainer assesses participant progress through multiple-choice questions, role-playing exercises and hands-on work. At the end, a certificate of achievement is issued to each participant.

### Post-Training Support

For one month following the training, each participant can contact MFE-IT trainers with questions about implementing acquired knowledge. A response is provided by email or telephone within 48 working hours.

### Accessibility

MFE-IT is committed to welcoming people with disabilities. Contact: contact@mfe-it.com.

## PRACTICAL INFORMATION

### Trainer Resources

- Structured demonstrations aligned with the detailed programme
- Exercise briefs and solutions throughout the training
- A ready-to-use technical environment for practical workshops
- Trainer validation of acquired knowledge at the end of each workshop
- Digital reference documents

### Certification and Validation

At the end of the training, a certificate is sent by email specifying the objectives, nature, duration and assessment results. A completion certificate can also be provided on request.

### Benefits for Participants

- Train from your workplace or home, with no travel required
- Benefit from an expert trainer-consultant on the subject
- Enjoy an ultra-personalised format (1 to 3 participants)
- Continue training even in the event of unforeseen circumstances

### Benefits for the Organisation

- Optimise the training budget by reducing travel and accommodation costs
- Offer quality training to all employees, regardless of location
- Reduce absence time linked to travel
- Support team upskilling in all contexts