

Docker Masters Program Syllabus



1 Course Overview

Learn Docker and Kubernetes in depth, including containers, Dockerfiles, Docker Compose, Kubernetes, Helm, CI/CD, container security, monitoring, and cloud container services. Gain practical skills to build, ship, orchestrate, and secure containerized applications in production.

Modern applications are built and run as containers, and Kubernetes is the standard way to manage them at scale. Engineers who understand both Docker and Kubernetes are needed for DevOps, cloud and platform roles in almost every technology company.

2 Course Highlights

- Masters-level container path covering Docker, Kubernetes, Helm and GitOps
- Real deployments on cloud container services with CI/CD and monitoring
- Hands-on practice with assignments in every module
- Resume building, mock interviews and placement guidance

3 Who Can Join

- Students and fresh graduates who want a career in DevOps, cloud or platform engineering
- Developers who want to deploy and scale containerized applications
- System administrators who want to move from servers to containers
- DevOps and cloud professionals who want to prepare for Kubernetes certifications

4 Course Syllabus

The course is divided into 7 modules. Each module combines concept sessions with hands-on practice.

MODULE 1 Containers, Linux and Docker Fundamentals

- Virtual machines vs containers
- How containers work: namespaces and cgroups
- Linux commands and networking basics
- Docker architecture and installation
- Docker images, containers and registries
- Container lifecycle and logging
- Docker CLI and troubleshooting



MODULE 2 Dockerfile, Networking, Storage and Docker Compose

- Dockerfile instructions and image layers
- Multi-stage builds and image optimization
- Docker networks: bridge, host and overlay
- Volumes and bind mounts
- Docker Compose for multi-container apps
- Environment variables and secrets
- Docker Swarm overview

MODULE 3 Kubernetes Architecture and Core Objects

- Kubernetes architecture: control plane and nodes
- Installing a cluster with Minikube, kind and kubeadm
- Pods, ReplicaSets and Deployments
- Services: ClusterIP, NodePort and LoadBalancer
- Namespaces, labels and selectors
- ConfigMaps and Secrets
- kubectl commands and YAML manifests

MODULE 4 Kubernetes Advanced: Storage, Scheduling, Security and Scaling

- Persistent volumes and persistent volume claims
- StatefulSets and DaemonSets
- Jobs and CronJobs
- Ingress controllers and TLS
- Resource requests, limits and the Horizontal Pod Autoscaler
- RBAC, service accounts and network policies
- Scheduling: node affinity, taints and tolerations

MODULE 5 Helm, GitOps and CI/CD for Containers

- Helm charts, values and releases
- Creating and publishing Helm charts
- Building Docker images in Jenkins and GitHub Actions
- Pushing to registries: Docker Hub, ECR, ACR and GCR
- GitOps principles
- Argo CD for continuous delivery
- Deployment strategies: rolling, blue-green and canary



MODULE 6 Cloud Container Services, Monitoring and Security

- Managed Kubernetes: Amazon EKS, Azure AKS and Google GKE
- Serverless containers: AWS Fargate and Cloud Run
- Provisioning clusters with Terraform
- Monitoring with Prometheus and Grafana
- Centralized logging with the EFK or ELK stack
- Container image scanning with Trivy
- Secrets management and security best practices

MODULE 7 Real-World Projects and Certification Preparation

- Containerizing a multi-tier application
- Deploying a microservices application on Kubernetes
- Building a full CI/CD pipeline with GitOps
- Troubleshooting pods, nodes and networking
- CKA, CKAD and Docker certification overview
- Mock tests and practice labs
- Resume and interview preparation

5 Tools and Technologies Covered

Docker, Docker Compose, Kubernetes, kubectl, Minikube / kind, Helm, Argo CD, Jenkins, GitHub Actions, Amazon EKS / Azure AKS / Google GKE, Terraform, Prometheus and Grafana, ELK / EFK stack, Trivy, Linux.

6 Hands-On Projects

Containerized Multi-Tier Application	Web app, API and database with Docker Compose.
Microservices on Kubernetes	Services, Ingress, autoscaling and persistent storage.
GitOps Deployment with Argo CD	Cluster changes driven from a Git repository.
Managed Kubernetes on the Cloud	Cluster created with Terraform and monitored with Grafana.



7 Learning Outcomes

- Understand containers, Docker and Kubernetes architecture in depth.
- Build optimized Docker images and run multi-container applications.
- Deploy, scale and manage applications on Kubernetes.
- Package and release applications using Helm.
- Build CI/CD and GitOps pipelines for containers.
- Monitor and secure container platforms, and prepare for Kubernetes certifications.

8 Career Opportunities

- DevOps Engineer
- Kubernetes Administrator
- Container Platform Engineer
- Cloud Engineer
- Site Reliability Engineer
- Platform Engineer

9 Course Details

Duration	As per course schedule
Level	Beginner to Advanced
Mode	Online / Classroom
Prerequisites	Basic computer knowledge; basic Linux knowledge is helpful
Certification	Course completion certificate
Support	Placement assistance and interview preparation

10 Frequently Asked Questions

Do I need prior experience to join?

No. The course starts from the basics, so beginners can join. The prerequisite listed in the course details is enough.

Will I get hands-on practice?

Yes. Every module includes practical sessions, assignments and a real-world project.

Do you provide placement support?

Yes. We provide resume building, mock interviews and placement guidance.



Can I attend online?

Yes. The course is available in both online and classroom modes.

11 Contact Information

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