SYLLABUS FOR BOARD OF STUDIES ADOPTION — generated from the live catalogue record

Containers, Docker and Kubernetes

S-07B · 3 days (configurable 1–5 days) · Informatics · Cloud · Years: 2nd, 3rd, PG

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OVERVIEW

Containerising an application, orchestration basics and a deployed multi-container workload.

Containers are the standard unit of modern deployment; students who can containerise and orchestrate an application are immediately valuable to any engineering team.

HOURS AND CREDIT POSITION

Contact hours: 24 Guided project: 6 Self-study: 0 Notional total: 30

Credit claim: 1
30 notional hours ÷ 30 hours per credit (NSQF track, UGC Micro-credentials Guidelines §5.3.3) = 1 credits.

COURSE OUTCOMES

CO1. Explain how containers differ from virtual machines (K2)
CO2. Build a container image with a Dockerfile (K3)
CO3. Compose a multi-container application with networking and volumes (K3)
CO4. Deploy an application to Kubernetes using deployments and services (K3)
CO5. Scale and health-check a containerised workload (K3)

COURSE CONTENT — MODULES

Hours shown are the recommended format; module time scales proportionally when the engagement runs 1–5 days.

Module 1 — Container foundations (4h recommended)
Theory: Images, containers, the Docker workflow
Lab: Run and inspect containers
Output: Container command log

Module 2 — Building images (4h recommended)
Theory: Dockerfiles, layers, registries
Lab: Build and push an image
Output: Custom image

Module 3 — Multi-container applications (4h recommended)
Theory: Docker Compose, networking, volumes
Lab: Compose a multi-container app
Output: Compose file + running app

Module 4 — Kubernetes concepts (4h recommended)
Theory: Pods, deployments, services
Lab: Deploy a pod and a service
Output: Kubernetes manifests

Module 5 — Orchestration in practice (4h recommended)
Theory: Scaling, configuration, health checks
Lab: Scale and health-check a workload
Output: Scaled deployment

Module 6 — Deployment capstone (4h recommended)
Theory: A deployed multi-container workload
Lab: Deploy the capstone workload
Output: Deployed workload

ASSESSMENT SCHEME (100 MARKS)

Continuous lab exercises — 40 marks
Capstone project & demonstration — 40 marks
Quiz & viva voce — 20 marks

CO–PO MAPPING

CO1 !' PO1 (strength 2)
The container model is foundational knowledge.

CO2 !’ PO5 (strength 2)
Docker is a modern tool of the field.
CO3 !’ PO3 (strength 2)
Composing an app is solution development.
CO4 !’ PO5 (strength 2)
Kubernetes is a modern deployment tool.
CO5 !’ PO3 (strength 2)
Scaling and health checks are operational solution work.

EVERY PARTICIPANT RECEIVES

- Certificate of completion
- Course material
- LMS access
- Interview question bank
- Mock interview & viva practice
- Optional nasscom NSQF assessment (priced per candidate on your quotation)

FEE

[1]850 per student, incl. GST
Excludes the optional nasscom assessment where offered. Final pricing on your college's quotation.

DESIGNED BY

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