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

Cloud-Native Application Architecture

S-11B · 3 days (configurable 1–5 days) · Informatics · Cloud · Years: 2nd, 3rd, PG

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OVERVIEW

Microservices, API gateways, observability and a cloud-native reference implementation.

Cloud-native patterns are how modern systems are built; students who understand microservices and observability design more resilient, scalable software.

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 the principles of a twelve-factor cloud-native application (K2)

CO2. Decompose a monolith into microservice boundaries (K4)

CO3. Configure an API gateway for routing and rate limiting (K3)

CO4. Apply resilience patterns to a service (K3)

CO5. Instrument a service for observability (K3)

COURSE CONTENT — MODULES

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

Module 1 — Cloud-native foundations (4h recommended)

Theory: The twelve-factor app, cloud-native principles

Lab: Assess an app against twelve-factor

Output: Assessment checklist

Module 2 — Microservices (4h recommended)

Theory: Decomposition, boundaries, communication

Lab: Decompose a monolith into services

Output: Service boundary map

Module 3 — API gateways (4h recommended)

Theory: Routing, rate limiting, edge authentication

Lab: Configure an API gateway

Output: Gateway configuration

Module 4 — Resilience (4h recommended)

Theory: Retries, circuit breakers, graceful degradation

Lab: Add resilience patterns to a service

Output: Resilient service

Module 5 — Observability (4h recommended)

Theory: Logging, metrics, tracing

Lab: Instrument a service for observability

Output: Instrumented service

Module 6 — Reference capstone (4h recommended)

Theory: A cloud-native reference implementation

Lab: Assemble the reference implementation

Output: Reference implementation

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)

Twelve-factor principles are foundational knowledge.

CO2 !' PO2 (strength 2)

Service decomposition is problem analysis.

CO3 !' PO5 (strength 2)

The API gateway is a modern tool.

CO4 !' PO3 (strength 2)

Resilience patterns are solution development.

CO5 !' PO5 (strength 2)

Observability tooling is modern-tool usage.

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

¹1,900 per student, incl. GST

Excludes the optional nasscom assessment where offered. Final pricing on your college's quotation.

DESIGNED BY

Venkat Kurela — Founder & Director, Kurela Cognisive Private Limited