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

Edge Computing and Sensor Networks

S-08B · 3 days (configurable 1–5 days) · Informatics · IoT · Years: 2nd, 3rd, PG

CONTENTS

1. Overview 2
2. Hours and credit position 2
3. Course outcomes 2
4. Course content — modules 2
5. Assessment scheme (100 marks) 2
6. CO–PO mapping 2
7. Every participant receives 3
8. Fee 3
9. Designed by 3

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OVERVIEW

Edge processing, protocols, power and connectivity constraints, and a deployed edge application.

As IoT scales, processing moves to the edge for speed and cost; students who can build within power and connectivity constraints meet an emerging industrial need.

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 trade-offs between edge and cloud processing (K2)
CO2. Design a sensor-network topology for a stated deployment (K3)
CO3. Implement data filtering and aggregation at the edge (K3)
CO4. Account for power and connectivity constraints in an edge design (K4)
CO5. Deploy an edge application that synchronises to the cloud (K3)

COURSE CONTENT — MODULES

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

Module 1 — Edge computing foundations (4h recommended)
Theory: Why the edge, edge versus cloud trade-offs
Lab: Compare edge and cloud for a scenario
Output: Trade-off note

Module 2 — Sensor networks (4h recommended)
Theory: Topologies, protocols, data collection
Lab: Design a sensor-network topology
Output: Topology design

Module 3 — Edge processing (4h recommended)
Theory: Filtering and aggregating data at the edge
Lab: Filter and aggregate on the edge device
Output: Edge processing script

Module 4 — Constraints (4h recommended)
Theory: Power budgets, connectivity, intermittent networks
Lab: Budget power and connectivity for a deployment
Output: Constraint budget

Module 5 — Edge-to-cloud (4h recommended)
Theory: Synchronisation, buffering, store-and-forward
Lab: Buffer and sync data to the cloud
Output: Sync mechanism

Module 6 — Edge capstone (4h recommended)
Theory: A deployed edge application within constraints
Lab: Deploy the capstone edge application
Output: Edge application

ASSESSMENT SCHEME (100 MARKS)

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

CO–PO MAPPING

CO1 !' PO2 (strength 2)
Weighing edge trade-offs is problem analysis.

CO2 !’ PO3 (strength 2)
Topology design is solution design.
CO3 !’ PO3 (strength 2)
Edge processing is solution development.
CO4 !’ PO4 (strength 2)
Budgeting constraints is investigation of the deployment.
CO5 !’ PO5 (strength 2)
Edge-to-cloud sync 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

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

DESIGNED BY

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