

CodeZ – an Initiative of Akinchan

6-Month Industry-Focused Computer Science Curriculum (JavaScript-first)

Total length: 6 months (≈ 26 weeks) – **4 hours / week** → **≈ 104 learning hours**

Primary goal: Provide learners with a practical, job-ready foundation across the most important areas of modern software engineering, starting with **JavaScript** as the first programming language. The curriculum balances fundamentals (algorithms, data structures, OOP, databases, networking, OS thinking) with industry-relevant tools and a strong, hands-on project pipeline.

Program outcomes (what students will be able to do after 6 months)

- Write well-structured, modular, and object-oriented JavaScript code.
 - Understand the JavaScript runtime, asynchronous programming, and modern ES features.
 - Implement core data structures and algorithms and analyze their complexity.
 - Build a full-stack web application using Node.js (backend), SQL/NoSQL (database), and React or Vanilla JS (frontend).
 - Use Git, npm, testing frameworks, and follow a modern developer workflow.
 - Deploy applications using Docker and cloud hosting services.
 - Demonstrate foundational knowledge of networking, OS concepts, and software design patterns.
 - Present and deliver a capstone project integrating all learned skills.
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Format & assessment

- **Weekly class:** 4 hours (2×2 -hour or 4×1 -hour sessions). Each week includes theory + lab / hands-on.
 - **Assessment cadence:** Weekly coding exercises + quiz every 4 weeks + 3 mini-projects + final capstone.
 - **Delivery style:** Mix of short lectures, live coding demos, and lab sessions.
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High-level module breakdown (26 weeks)

- **Month 1 (Weeks 1–4):** JavaScript fundamentals & programming foundations
- **Month 2 (Weeks 5–8):** OOP in JS, ES6+ features, asynchronous JS, testing, and build tools
- **Month 3 (Weeks 9–12):** Data Structures & Algorithms with JavaScript
- **Month 4 (Weeks 13–16):** Databases, SQL/NoSQL, and Node.js backend fundamentals

- **Month 5 (Weeks 17–20):** Web fundamentals + Node.js/Express.js + frontend integration
- **Month 6 (Weeks 21–26):** DevOps basics, Cloud & Docker, System design intro, Capstone + Interview prep