COURSE SYLLABUS · FLAGSHIP BOOTCAMP · NEXT INTAKE SEPTEMBER 2026

Fullstack Engineering + AI Bootcamp

React · .NET · Node.js · AI Agents

Sydney in person and online across Australia. From programming fundamentals to shipping production full-stack applications with AI built in, taught by working engineers and backed by career support until you land an offer.

DURATION **24 weeks · 14 taught + 10 project**	MODE **Hybrid · Sydney + online**
NEXT INTAKE **September 2026**	BACK ENDS **C# / .NET and Node.js**
PROJECTS **Individual + large team project**	RECORDINGS **Every class recorded**

Course Overview

You build back ends in both C# / .NET and Node.js, front ends in React and TypeScript, deploy to Azure and AWS through CI/CD pipelines, and add real AI features: prompt engineering, RAG and agents. The course finishes with a large team project run the way Australian tech teams work, with sprints, code review and Jira.

Tools & Technologies (41)

FRONT END	HTML / CSS · JavaScript · TypeScript · React · React Router · Redux · Next.js · Vite
.NET BACK END	C# · ASP.NET Core · EF Core · Dapper · ASP.NET Identity · JWT
NODE.JS BACK END	Node.js · Express · NestJS · Prisma · Mongoose · Jest
DATABASES	MSSQL · PostgreSQL · MongoDB
CLOUD & DEVOPS	Azure · AWS · Docker · GitHub Actions · Azure DevOps
AI	Python · LLM APIs · RAG · LangChain · LlamaIndex · LangGraph · MCP
TEAM PRACTICE	Git · Jira · Confluence · Figma · Miro · Agile / Scrum

Curriculum

Six phases over 24 weeks. Key: ● New: Node.js ● AI ● Project

PHASE 1

.NET back-end core

Weeks 1–6

WEEK 1 — Setup & C# fundamentals

- Install the .NET SDK; create Console and Web API projects
- VS / VS Code setup and debugging
- Git and GitHub workflow basics
- C# syntax: types, control flow, methods, classes and OOP

WEEKS 2–3 — Web API & database modelling

- ASP.NET Core Web API architecture and REST routing
- Entity Framework Core and code-first modelling
- Controllers, DbContext and migrations
- Testing APIs with Postman and Swagger

WEEKS 4–5 — Layered architecture & API security

- Layered design: Controller, Service and Repository
- Authentication and authorisation with ASP.NET Identity + JWT
- Tasks, multithreading and async programming
- LINQ, Include and NoTracking query optimisation

WEEK 6 — Enterprise development practices

- DTOs, AutoMapper and FluentValidation
- Logging, middleware and global exception handling
- API documentation, query tuning and Dapper
- Docker, containerised APIs and MongoDB

PHASE 2

Front-end core

Weeks 7–9

WEEK 7 — Web fundamentals & JavaScript

- Semantic HTML: structure, forms, lists and layout
- CSS: Flexbox, Grid and responsive design
- JavaScript syntax, DOM manipulation and events

WEEK 8 — TypeScript & React

- TypeScript types, interfaces and generics
- A React project with Vite
- Function components, JSX, props and state
- Conditional and list rendering

WEEK 9 — State, routing & full-stack integration

- Forms and reusable components
- Calling your API: validation and error handling
- useState, useEffect and React Router
- Redux and Next.js; deploying the front end

PHASE 3
Node.js back end

Week 10

WEEK 10 — Node.js & TypeScript back end — NEW

- Node.js runtime, event loop, npm and modules
- PostgreSQL with Prisma ORM; MongoDB with Mongoose
- NestJS: modules, controllers and dependency injection
- REST APIs with Express + TypeScript: routing, middleware, validation
- JWT authentication and testing with Jest
- .NET or Node.js: choosing the right back end for a project

PHASE 4
Cloud & DevOps

Weeks 11–12

WEEK 11 — Azure & AWS

- Azure: App Service, SQL Database, Blob Storage, Application Insights
- Deploying the front end and back end to the cloud
- AWS: EC2, S3, RDS, ECR, ECS, Lambda, DynamoDB, CloudWatch

WEEK 12 — CI/CD & DevOps

- GitHub Actions: build, test and deploy
- CI/CD automation for front-end and back-end projects
- Azure DevOps Pipelines
- DevOps concepts and common interview questions

PHASE 5
AI engineering

Weeks 13–14

WEEK 13 — LLM apps, prompt engineering & RAG — AI

- Python for AI and calling LLM APIs
- Adding an AI chatbot to your full-stack project
- RAG over private data with LangChain / LlamaIndex
- Prompt design with system, user and assistant roles
- Embeddings and vector databases

WEEK 14 — AI agents, MCP & deployment — AI

- Function calling and task decomposition
- Building MCP servers and Agent Skills
- Deploying AI to Azure or AWS with monitoring
- Single- and multi-agent design with LangGraph
- Embedding and LLM fine-tuning

PHASE 6

Large-scale team project

Weeks 15–24

WEEKS 15–24 **A real commercial project, built as a team** **PROJECT**

- A multi-person project built around a real business
- Login and registration, permissions, business logic, persistence, front-end/back-end integration and deployment
- .NET or Node.js back end, React front end, deployed to Azure or AWS
- AI features built into the product
- Weekly progress submissions with code review and feedback
- Jira, Confluence, Figma and Miro; Sprints and Agile delivery

Career Support

Runs alongside the team project. What is included depends on your plan.

CV	Writing up project experience, Australian CV format and ATS keywords, cover letters
APPLYING	Searching LinkedIn, Seek and Indeed; keywords for .NET, Node.js and cloud roles; the DCoding SmartApply extension
INTERVIEWS	Common technical questions, talking through your project, behavioural interviews and mock interviews

Learning Outcomes

By the end of the bootcamp you will be able to:

- Build REST APIs in C# / ASP.NET Core and in Node.js / TypeScript
- Model and query data in MSSQL, PostgreSQL and MongoDB
- Build React + TypeScript front ends and connect them to your APIs
- Secure APIs with ASP.NET Identity and JWT
- Containerise applications with Docker and deploy to Azure and AWS through CI/CD
- Build AI features: prompt engineering, RAG over private data, and agents with LangGraph and MCP
- Deliver a large team project with Jira, code review and Agile sprints
- Walk an interviewer through your projects with confidence

Topics may be adjusted between intakes to keep pace with industry practice.