

This **Full-Stack Engineer course** is designed to provide participants with **intermediate-level skills** equivalent to 2–3 years of experience. It covers front-end, back-end, databases, DevOps, and cloud integration, ensuring a well-rounded knowledge of full-stack development.

Week	Topic	Key Concepts	Hands-On Activities
1	Introduction to Full-Stack	Overview of full-stack development, roles, and tools.	Setting up development environment: VSCode, Node.js, Git.
2	HTML & CSS Basics	Semantic HTML, CSS fundamentals, responsive design.	Building a simple static website.
3	JavaScript Fundamentals	Variables, functions, loops, DOM manipulation.	Adding interactivity to a website using JavaScript.
4	Advanced JavaScript	ES6+ features, async/await, promises, fetch API.	Consuming a REST API and displaying data on the frontend.
5	Introduction to Front-End Frameworks	Basics of React.js, components, props, and state.	Building a simple React application.
6	React Advanced Topics	React Router, hooks, context API, lifecycle methods.	Creating a multi-page React app with navigation.
7	Front-End State Management	Redux: Store, actions, reducers, middleware.	Integrating Redux for state management in a React app.
8	CSS Frameworks and Libraries	Bootstrap, Tailwind CSS, Material-UI.	Styling an app using a CSS framework.
9	Introduction to Back-End	Node.js basics, npm, Express.js framework.	Setting up an Express.js server with basic routes.
10	Building APIs	RESTful APIs, request/response cycle, middleware.	Building a REST API with CRUD operations using Express.js.
11	Authentication and Authorization	JWT, OAuth2, password hashing (bcrypt).	Adding user authentication to a Node.js API.
12	Database Basics	SQL vs. NoSQL, relational database fundamentals, MongoDB basics.	Setting up and querying a MongoDB database.
13	Advanced Database Operations	Data modeling, indexing, relationships, SQL joins.	Designing and querying relational data with PostgreSQL.
14	Full-Stack Integration	Connecting front-end with back-end APIs.	Building a full-stack CRUD application.
15	DevOps Basics	Version control (Git), CI/CD pipelines, introduction to Docker.	Setting up a GitHub Actions pipeline for a full-stack project.
16	Server-Side Rendering (SSR)	Introduction to SSR with Next.js.	Creating a server-rendered app with Next.js.
17	Real-Time Applications	WebSocket's, Socket.IO, real-time data streaming.	Building a real-time chat application.

NavAdr Technologies Solutions



A-04, Street of Europe, Hinjewadi-Phase1

Pune-411057 ,Ph: +91-8857019010

Email : training@navadr.com

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18	Cloud Deployment	Introduction to AWS, GCP, or Azure.	Deploying a full-stack app on a cloud platform.
19	Testing and Debugging	Unit testing (Jest), end-to-end testing (Cypress), debugging tools.	Writing and running test cases for a full-stack application.
20	Performance Optimization	Lazy loading, caching, code splitting, database optimization.	Optimizing a full-stack application for performance.
21	Advanced Front-End Techniques	Progressive Web Apps (PWAs), Webpack, Babel.	Building a PWA with offline capabilities.
22	Advanced Back-End Techniques	Microservices architecture, GraphQL, serverless functions.	Building a simple GraphQL API.
23	Capstone Project Development	Full-stack project planning, integrating all concepts learned.	Developing a real-world full-stack application.
24	Capstone Presentation	Showcasing the capstone project.	Presenting the project
25-36	Live Project Exposure	3 Months Live Project Experience	