Full Stack Development Course

Module 1: Web Development Fundamentals

- Internet basics: Client–Server architecture, HTTP/HTTPS, APIs
- How the web works (DNS, hosting, browsers)
- Git & GitHub (version control basics)
- VS Code & developer tools

⚡ Mini Project: Personal portfolio using basic HTML & CSS

Module 2: Frontend Development – Core

- HTML5: Semantic tags, forms, media
- CSS3: Selectors, box model, flexbox, grid, transitions/animations
- JavaScript (ES6+): Variables, functions, loops, arrays, objects
- DOM manipulation & events
- ES6 features (arrow functions, spread/rest, destructuring, promises, async/await)

⚡ Mini Project: To-do list app with JavaScript

Module 3: Frontend Development – Advanced

- Responsive Design: Media queries, Bootstrap/Tailwind CSS
- Modern JS Framework: React (or Angular/Vue, but React is most popular)

> Components, props, state
>
> Hooks (useState, useEffect, useContext)
>
> React Router (navigation)
>
> State management (Redux / Context API)

- API integration with fetch/axios

⚡ *Mini Project*: Weather app with React + external API

Module 4: Backend Development – Core

- Node.js: Basics, modules, npm, event loop
- Express.js:
  Routing, middleware
  Handling requests/responses
  RESTful APIs
- Authentication & Authorization: Sessions, JWT
- Error handling & security basics

⚡ Mini Project: REST API for a blog system

Module 5: Databases

- Relational DB (SQL – MySQL/PostgreSQL): Tables, joins, CRUD, indexing
- NoSQL DB (MongoDB): Documents, collections, aggregation

- ORM/ODM: Sequelize (SQL) / Mongoose (MongoDB)

📌 Mini Project: User registration + login system (with DB integration)

Module 6: Full Stack Integration

- Connecting frontend (React) with backend (Express + Node)
- Fetching & sending data via REST APIs
- MVC architecture in projects
- File upload & handling
- Real-time apps (WebSockets, Socket.io basics)

📌 Mini Project: Chat application (real-time)

Module 7: Deployment & DevOps Basics

- Hosting frontend (Netlify, Vercel)
- Hosting backend (Heroku, Render, Railway, AWS)
- Databases in cloud (MongoDB Atlas, AWS RDS)
- Docker basics for containerization
- CI/CD basics with GitHub Actions

📌 Mini Project: Deploy full-stack app to cloud

Module 8: Advanced Topics

- GraphQL (Apollo, queries, mutations)
- Microservices architecture basics
- Testing: Jest, Mocha, Cypress
- Performance optimization & caching (Redis)
- Serverless functions (AWS Lambda, Vercel functions)

Module 9: Project

- Build a complete production-level full stack app (e.g., E-commerce, social media, Project Management Tool)
- Features: authentication, CRUD, payments (Stripe/PayPal), deployment
- Document the project in GitHub with README & API docs