Full Stack Development with Cursor Vibe Coding

Duration: 5 days / 40 hours
Perquisites: Knowledge of Web Application Development

Day 1: Getting Started with Vibe Coding & Frontend Essentials

1. Introduction to Vibe Coding with Cursor IDE

- What is Cursor IDE?
- Installing & setting up Cursor
- AI tools in Cursor: Autocomplete, Copilot Chat, Inline Suggestions

2. Project Setup & Git Integration

- Creating repositories and projects
- Working with branches and version control in Cursor

3. HTML5 Essentials

- Structure and semantic elements
- Forms, tables, media embedding

4. CSS3 Fundamentals

- Styling basics: selectors, properties
- Flexbox and Grid layouts
- Media queries for responsive design

5. JavaScript Basics

- Variables, functions, conditionals, loops
- DOM selection and manipulation
- Event handling

6. Hands-on Task

- Build a responsive HTML/CSS/JS landing page
- Use Cursor AI to assist in debugging and layout design

Day 2: Advanced Frontend with React & AI-Assisted Development

1. React Fundamentals

- JSX syntax and rules
- Functional components and props
- Rendering lists and keys

2. State Management in React

- useState and useEffect hooks
- Conditional rendering
- Forms and controlled inputs

3. Component Styling

- CSS Modules / Tailwind CSS integration
- Reusable components

4. AI-Powered Frontend Development

- Using Cursor for React snippets
- Debugging and refactoring React code using AI

5. Hands-on Project

- Build a React portfolio site (with sections like About, Projects, Contact)
- Get AI assistance to review and optimize code

Day 3: Backend Development with Node.js and Express

1. Node.js Essentials

- Intro to Node.js runtime
- Creating your first Node script

2. Express.js Fundamentals

- Setting up Express server
- Middleware and routing
- Request and response handling

3. REST API Development

- CRUD operations (Create, Read, Update, Delete)
- Handling query params and body data
- API design best practices

4. Cursor AI for Backend Tasks

- Auto-generating routes
- Refactoring Express code
- Fixing common API bugs using AI

5. Hands-on Task

- Build a Product/Task management API using Express

Day 4: Full Stack Integration with MongoDB

1. Introduction to MongoDB

- NoSQL vs SQL
- Collections and documents
- MongoDB Atlas setup

2. Mongoose Basics

- Connecting MongoDB with Mongoose
- Creating schemas and models
- CRUD with Mongoose

3. Building Full Stack Integration

- Connecting Express API to MongoDB
- Fetching data in React using Axios or Fetch API
- Displaying data dynamically in frontend

4. AI-Powered Data Modeling

- Use Cursor to generate model schemas
- Debug Mongoose errors with AI help

5. Hands-on Project

- Build a full-stack Todo/Blog app
- Create and display items from database

Day 5: Testing, Deployment & Real-Time Features

1. Testing in Full Stack Applications

- Unit testing with Jest
- Writing frontend and backend tests
- Cursor-assisted test generation

2. Deployment

- Deploying React app to Vercel
- Deploying backend to Render or Railway
- Connecting frontend to deployed backend

3. Real-Time Features with WebSockets

- Introduction to Socket.io
- Implementing real-time chat or notification

4. Final Capstone Project

- Add real-time features to previous day's project
- Use Cursor AI for final optimization and polishing