

MERN Stack Development using AI Course Structure

Duration – 70 Hours (4 Months)



Module 1: Core Web Technologies & JavaScript -- 10 Hours

- HTML5 & CSS3: Fundamentals of structuring web pages and styling with modern CSS features like Flexbox and Grid.
- JavaScript Essentials (ES6+): Covers variables, functions, control structures, promises, async/await, and object-oriented concepts.
- AI Integration: Using AI tools (e.g., GitHub Copilot, ChatGPT) for basic code generation, debugging simple JavaScript errors, and generating CSS styles from descriptions.

Module 2: React.js (Frontend) -- 12 Hours

- React Fundamentals: Introduction to React, JSX syntax, components, props, and state management using useState.
- Advanced React: Implementing React Hooks (useEffect, useRef), routing with React Router, and styling techniques.
- AI Integration: Utilizing AI for generating component templates, optimizing component structure, and explaining complex state management logic.

Module 3: Node.js & Express.js (Backend) -- 12 Hours

- Node.js Fundamentals: Introduction to Node.js, NPM (Node Package Manager), handling events, and creating a local development environment.
- Express.js Basics: Setting up an Express application, defining routes, using middleware for handling HTTP requests, and managing cookies/sessions.
- AI Integration: Using AI to write API endpoints based on functional requirements, generate unit tests for Node.js modules, and explain middleware functions.



Module 4: MongoDB (Database) -- 8 Hours

- MongoDB Basics: Understanding NoSQL databases, setting up MongoDB, performing CRUD operations (Create, Read, Update, Delete).
- Mongoose: Data modeling and schema creation using Mongoose for interacting with the MongoDB database from the Node.js application.
- AI Integration: Generating MongoDB schema designs from project descriptions, optimizing database queries, and debugging Mongoose connection issues.

Module 5: Full-Stack Integration & Deployment -- 8 Hours

- Authentication & Authorization: Implementing user registration, login, and securing routes using JWT (JSON Web Tokens).
- API Development: Developing and testing RESTful APIs that connect the React frontend to the Express/Node.js backend and MongoDB.
- Deployment: Basics of hosting MERN applications on cloud platforms (e.g., Heroku, Netlify, Vercel).
- AI Integration: Leveraging AI for writing secure authentication logic, generating API documentation, and troubleshooting deployment configurations.

Hands-On Project, Deployment & Cloud Storage – 20 Hours.





Contact Us Today!



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