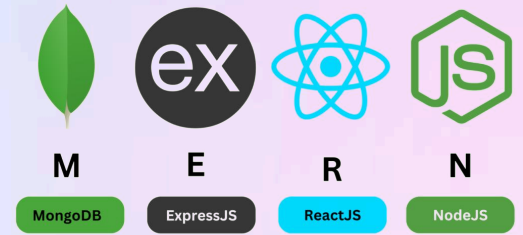


# MERN Stack: CURRICULUM



Course Duration: 2 Months • Class Time: 1.5 Hrs

## Week 1: Introduction to Web Development and Programming Basics

### 1. Introduction to Web Development

- What is Web development, Introduction to Frontend and Backend
- Overview of MERN Stack
- Tools Setup: VS Code, Nodejs etc.

### 2. Basics of Programming

- Variables, Data Types, Operators
- Control Statements: If-else, else-if, loops
- Basics of Functions with sync and async examples

### 3. Basics of Git

- Introduction to git and it's basic use case (General Push, pull Operation)

## Week 2: Backend development with Node.js and Express.js with AI

### 4. Introduction to Backend Development

- Setting up a node application
- Introduction to API and express-js server
- Introduce AI debugging tools like OpenAI Codex or GitHub Copilot to analyze and debug code errors in Express.js applications.

### 5. Rest API Development

- Routing and basic concept of middleware with use-case
- Defining CRUD routes and introduction with Express

### 6. Authorization and Authentication in Express

- Introduction to Roles and permissions
- Basic Implementation of Roles and permissions

## Week 3: Introduction to Database and Implementation

### 7. Introduction to Database

- Sql Vs NoSql
- Setting up mysql and Introduction to basic CRUD Queries

## 8. Usages of Database

- Introduction to Integration
- Integrating Database with Express-js project

### Project Work

- Develop a basic project for TODO application API with Authentication implementation

## Week: 4 Frontend Technology

### 9. Working with Figma/Canva

- Introduction to UI/UX Design
- Designing a simple web layout in Figma

### 10. Introduction to HTML,CSS and DOM Manipulation using JS

- Generating html using AI tools (eg. copilot, chatGPT, etc)
- CSS Basics: Styling elements, box model, and positioning.
- Introduction to TailwindCSS
- Tailwind setup and usage.
- Event handling, DOM traversal, and manipulation using JS

### 11. Introduction to React.js

- Benefits of React for modern web development.
- Setting a React app
- Introduction to React Components
- React Lifecycle, State vs Props

## Week 5-6: React Ecosystem

### 12. React Routing

- React-router introduction to handle routing with basic router setup
- Child routing and implementation

### 13. React Form Handling and Integration

- Developing a form with basic validation and implementation
- Introduction to API
- Integration with the api using axios or fetch

### Project Development

- Developing and implementing project using api integration

## Week: 7-8: Introduction to Next.js

### 14. Introduction to Next.js

- Features of Next.js,
- Setting up Next.js project
- Architecture of Next.js project

### 15. Routing

- File based Routing and it's implementation

### 16. SSR, SSG

- Server side rendering and implementation
- Static site generation and performance optimization
- Implementing a project on Next.js
- AI tools it's usages for Debugging



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