TECH DRONA
DEBUG YOUR CAREER. DEPLOY YOUR DREAMS.

Coming soon · 2026

FULL-STACK DEVELOPMENT COURSE

MERN Stack Development

Build complete JavaScript applications with MongoDB, Express, React and Node.js.



TECHNOLOGIES COVERED

MongoDB · Express · React · Node.js · JavaScript · Redux Toolkit · Tailwind CSS

54 hours	10	Labs + capstone
Duration	Modules	Projects

01 ABOUT THE COURSE

Course overview

A 54-hour course that builds full JavaScript applications from the browser to the database. Learners go deep on modern JavaScript and React, then build REST APIs with Node.js and Express, store data in MongoDB and secure it with JWT. A dedicated module shows how to work productively with AI coding assistants without losing control of the code.

DURATION
54 hours
Training hours, including guided labs

MODULES
10
Each module ends with hands-on practice

PROJECTS
Labs + capstone
Built, reviewed and demonstrated

LEVEL
Beginner friendly

What you will learn

Modern JavaScript
ES6+ · Closures · Async/await · DOM · Fetch

React
Components · Hooks · React Router · Redux Toolkit · Tailwind CSS

Node.js and Express
REST APIs · Middleware · Validation · JWT auth

Data and delivery
MongoDB · Mongoose · AI-assisted coding · Deployment

02 WHO IT IS FOR

Goals & outcomes

Who it is for

Students, fresh graduates and career switchers who want front-end or full-stack JavaScript roles.

Prerequisites

- Comfort using a computer and the web
- No JavaScript experience is required

Learning objectives

- Use modern JavaScript confidently, including closures, modules and async/await.
- Build component-based React interfaces with hooks, routing, forms and global state.
- Create REST APIs with Node.js and Express, with validation and JWT authentication.
- Model data in MongoDB with Mongoose.
- Use AI coding assistants effectively, and deploy the front end, API and database.

Key highlights

- One language, JavaScript, across the whole stack.
- React taught in depth, including Redux Toolkit and performance basics.
- Practical AI-assisted development as part of the workflow.
- The capstone is deployed with a live link for your portfolio.

Expected outcomes

Build full-stack apps
Plan and build a complete MERN application with authentication.

Write modern React
Structure React apps with hooks, routing and global state.

Work with AI tools
Use AI coding assistants productively and review what they produce.

Portfolio ready
Show a live, deployed project and its GitHub repository to employers.

SKILLS YOU BUILD

JavaScript · React · Redux Toolkit · Node.js · Express · MongoDB · REST APIs · AI-assisted coding

03 TEN MODULES, ONE DEPLOYED CAPSTONE

Course curriculum

01 MODULE 1 — Web foundations

4 hrs

1.1 **How the web works**
client and server · HTTP request and response · DNS and hosting · static vs dynamic sites

1.2 **HTML5**
structure and semantic tags · forms and input types · media · accessibility basics

1.3 **CSS and responsive design**
box model · flexbox · grid · media queries · transitions

1.4 **Git and GitHub**
commits and branches · pull requests

02 MODULE 2 — JavaScript fundamentals

5 hrs

2.1 **Language basics**
variables and data types · operators · conditionals and loops · strings

2.2 **Functions, arrays and objects**
declarations and arrow functions · array methods · objects and methods

2.3 **The DOM**
selecting and changing elements · events · form handling · localStorage and sessionStorage

03 MODULE 3 — Modern and asynchronous JavaScript

6 hrs

3.1 **ES6+ features**
destructuring · spread and rest · template literals · modules

3.2 **How JavaScript runs**
scope and closures · hoisting · this, call, apply and bind · prototypes and classes

03 MODULE 3 · CONTINUED
Modern and asynchronous JavaScript

3.3 **Asynchronous JavaScript**
the event loop · callbacks · promises · async/await · fetch and JSON

3.4 **Robust code**
error handling with try/catch · debouncing and throttling · clean-code habits

04 MODULE 4
React foundations

6 hrs

4.1 **Getting started**
single-page apps and the virtual DOM · Vite setup · folder structure · JSX

4.2 **Components**
functional components · props · state with useState · events and controlled inputs

4.3 **Rendering**
lists and keys · conditional rendering · styling: CSS modules and Tailwind CSS

05 MODULE 5
React in depth

7 hrs

5.1 **Hooks**
useEffect and data fetching · useRef · useMemo and React.memo · custom hooks

5.2 **Routing**
React Router · route parameters · protected routes

5.3 **State management**
lifting state · Context API · Redux Toolkit: store, slices and createAsyncThunk

5.4 **Forms and quality**
form validation · loading and error states · code splitting

06 MODULE 6 — Node.js and Express

6 hrs

6.1 **Node.js**
the runtime and modules · npm · file system and environment variables

6.2 **Express**
routing · middleware · request validation · centralised error handling

6.3 **REST API design**
resources and status codes · pagination and filtering · file uploads · testing with Postman

07 MODULE 7 — MongoDB and Mongoose

5 hrs

7.1 **MongoDB**
documents and collections · SQL vs NoSQL · CRUD · MongoDB Atlas

7.2 **Mongoose**
schemas and models · validation · relations with populate · indexes

08 MODULE 8 — Authentication and security

3 hrs

8.1 **User accounts**
password hashing with bcrypt · JWT in HTTP-only cookies · role-based access

8.2 **Hardening**
CORS · rate limiting · secrets in environment variables

09

MODULE 9

AI-assisted development and deployment

4 hrs

9.1 **Coding with AI assistants**

AI code editors such as Cursor · planning before prompting · effective prompts · debugging and reviewing AI-written code

9.2 **Deployment**

front end on Vercel or Netlify · API on Render · database on MongoDB Atlas · environment configuration

10

MODULE 10

Capstone project

8 hrs

10.1 **Plan the product**

user stories · data model · API contract · UI wireframes

10.2 **Build and deploy**

React front end · Express API · MongoDB · authentication · deployment

10.3 **Demo and code review** PROJECT

live demonstration · review feedback

Total duration · 54 hours

Training hours across ten modules, including guided labs and the capstone project.

04 LEARN BY BUILDING

Practical learning

Hands-on learning

- JavaScript labs: a to-do app with local storage and a weather app built on a public API.
- A React product-showcase app with routing, a carousel and Redux state.
- A blog REST API with Express, MongoDB and JWT authentication, connected to a React front end.
- Building and debugging a feature with an AI coding assistant, then reviewing the result.

Tools & technologies

Front end

React · Vite · React Router · Redux Toolkit · Tailwind CSS

Back end

Node.js · Express · JWT · bcrypt

Data

MongoDB · Mongoose · MongoDB Atlas

Workflow

VS Code · Cursor · Git and GitHub · Postman · Vercel · Render

Projects

Mini project · Personal portfolio
A responsive portfolio site in React, deployed with a custom layout and project gallery.

Mini project · Ticket management
Create, assign and track support tickets with a React UI and an Express API.

Capstone · choose one
An e-commerce store, a music-streaming UI with playlists or a news and blog platform, deployed end to end.

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DEBUG YOUR CAREER. DEPLOY YOUR DREAMS.

One technology partner. From learning to building to scaling.

Software engineering, AI and cloud, practical training and internships, recruitment and technology procurement, from one accountable team in Vijayawada.

NEXT STEP

Coming soon: join the waitlist

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LOCATION
Vijayawada, Andhra Pradesh, India

MSME registered

AICTE partner

Course details, schedules and fees are confirmed on enquiry and may change.