TECH DRONA
DEBUG YOUR CAREER. DEPLOY YOUR DREAMS.

Coming soon · 2026

FULL-STACK DEVELOPMENT COURSE

MEAN Stack Development

Build typed, enterprise-style applications with MongoDB, Express, Angular and Node.js.



TECHNOLOGIES COVERED

TypeScript · Angular · RxJS · NgRx · Node.js · Express · MongoDB · Socket.IO

52 hours	10	Labs + capstone
Duration	Modules	Projects

01 ABOUT THE COURSE

Course overview

A 52-hour, TypeScript-first course for building enterprise-style web applications with MongoDB, Express, Angular and Node.js. Learners who already know JavaScript basics learn TypeScript, Angular with RxJS and NgRx, a layered TypeScript API, real-time updates with Socket.IO and reporting with MongoDB aggregation.

DURATION
52 hours
Training hours, including guided labs

MODULES
10
Each module ends with hands-on practice

PROJECTS
Labs + capstone
Built, reviewed and demonstrated

LEVEL
Intermediate

What you will learn

TypeScript
Types · Interfaces · Generics · Decorators

Angular
Standalone components · Routing · Reactive forms · RxJS · NgRx

Typed back end
Express in TypeScript · Zod validation · JWT · Socket.IO

MongoDB
Schema design · Aggregation · Transactions

02 WHO IT IS FOR

Goals & outcomes

Who it is for

Developers and students who know basic JavaScript and want Angular or enterprise full-stack roles.

Prerequisites

- JavaScript basics: functions, arrays, objects and promises
- HTML and CSS

Learning objectives

- Write typed code with TypeScript, using interfaces, generics and utility types.
- Build Angular applications with standalone components, routing, reactive forms and RxJS.
- Manage application state with signals or NgRx.
- Build a layered Express API in TypeScript with validation, authentication and real-time events.
- Use MongoDB aggregation pipelines and transactions for reporting features.

Key highlights

- TypeScript from the browser to the database.
- Angular skills that enterprises and IT services companies use.
- Real-time features and reporting, beyond basic CRUD.
- No repeat of JavaScript basics, so time goes to advanced topics.

Expected outcomes

Build Angular apps

Structure large Angular applications with typed services, routing and state.

Typed full stack

Share TypeScript models and validation from the UI to the API.

Real-time features

Add live updates and reports that go beyond CRUD.

Interview ready

Present a deployed Angular project and explain its design.

SKILLS YOU BUILD

TypeScript · Angular · RxJS · NgRx · Node.js · Express · MongoDB · Socket.IO

03 TEN MODULES, ONE DEPLOYED CAPSTONE

Course curriculum

01 MODULE 1 TypeScript — 5 hrs

1.1 **Types**
primitive and object types · unions and literal types · type narrowing · tsconfig

1.2 **Modelling data**
interfaces and type aliases · enums · classes and access modifiers

1.3 **Advanced types**
generics · utility types · decorators

02 MODULE 2 Angular foundations — 6 hrs

2.1 **Getting started**
Angular CLI · project structure · standalone components

2.2 **Templates**
interpolation and data binding · event binding · built-in control flow · pipes

2.3 **Components**
inputs and outputs · content projection · lifecycle hooks · directives

03 MODULE 3 Services, HTTP and routing — 5 hrs

3.1 **Dependency injection**
services · providers and injection scope

3.2 **HTTP**
HttpClient · interceptors for auth and errors · environment configuration

3.3 **Routing**
routes and parameters · guards · lazy loading · resolvers

04 MODULE 4 — Forms and RxJS

6 hrs

4.1 **Reactive forms**
FormGroup and FormControl · built-in and custom validators · dynamic forms

4.2 **RxJS**
observables and subscriptions · operators: map, filter, switchMap, debounceTime · subjects · error handling

05 MODULE 5 — State and UI

5 hrs

5.1 **State management**
signals and computed values · NgRx store, actions and effects · choosing between them

5.2 **UI and performance**
Angular Material · change detection strategies · deferred loading

06 MODULE 6 — Node.js and Express in TypeScript

5 hrs

6.1 **Project structure**
routes, controllers and services · configuration · logging

6.2 **Robust APIs**
middleware · DTO validation with Zod · centralised error handling · API documentation

07 MODULE 7 — MongoDB beyond CRUD

4 hrs

7.1 **Schema design**
embedding vs referencing · Mongoose with TypeScript · indexing

7.2 **Reporting and integrity**
aggregation pipeline · grouping and lookups · transactions

08 MODULE 8 — Authentication and real-time features

4 hrs

8.1	**Authentication** JWT access and refresh tokens · role guards in Angular and Express	
8.2	**Real time** Socket.IO events · live notifications and dashboards	

09 MODULE 9 — Testing and deployment

3 hrs

9.1	**Testing** Angular component and service tests · API tests with Jest and Supertest	
9.2	**Deployment** production builds · Docker basics · deploying to the cloud	

10 MODULE 10 — Capstone project

9 hrs

10.1	**Plan the application** roles and user flows · data model · API contract	
10.2	**Build and deploy** Angular front end · TypeScript API · MongoDB · live updates · deployment	
10.3	**Demo and code review** live demonstration · review feedback	PROJECT

Total duration · 52 hours

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

04 LEARN BY BUILDING

Practical learning

Hands-on learning

- TypeScript labs: typed domain models and a generic API client.
- An Angular task board with routing, guards and reactive forms.
- A sales dashboard using NgRx state and Angular Material.
- A TypeScript Express API with aggregation reports and live Socket.IO notifications.

Tools & technologies

Front end

Angular · RxJS · NgRx · Angular Material

Back end

Node.js · Express · TypeScript · Zod · Socket.IO

Data

MongoDB · Mongoose · MongoDB Atlas

Workflow

VS Code · Angular CLI · Jest · Postman · Docker · Git and GitHub

Projects

Mini project · Task board

A multi-user Kanban board with drag-and-drop, guards and reactive forms.

Mini project · Live sales dashboard

Charts fed by MongoDB aggregation, updated in real time with Socket.IO.

Capstone · choose one

A hospital appointment system, a CRM with a live sales pipeline or a support-ticket desk, deployed end to end.

TECH DRONA

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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Vijayawada, Andhra Pradesh, India

MSME registered

AICTE partner

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