

KOENIG SOLUTIONS · COURSE OUTLINE

Rapid Backend Development with NestJS and MongoDB

Learn to build, structure and deploy NestJS APIs with MongoDB, from controllers and modules to testing and production.

2 Days

DURATION

10

MODULES

39

TOPICS

7

HANDS-ON LABS

COURSE OVERVIEW

This course covers the fundamentals of NestJS, including its architecture of controllers, providers and modules, and the use of the Nest CLI to set up and structure a new project. It then addresses routing, dependency injection and modular application design before moving into data validation, exception handling, middleware, interceptors and guards. The course proceeds to connecting a NestJS application to MongoDB using Mongoose for schemas, models and CRUD operations, followed by unit testing with Jest and API testing with Postman. It concludes with preparing and deploying a NestJS application to platforms such as Heroku, Render and Railway.

WHO THIS COURSE IS FOR

Backend Developers

API Developers

Node.js Developers

Software Engineers

Full-Stack Developers

PREREQUISITES

- Knowledge of JavaScript and Node.js

LEARNING OBJECTIVES

- Explain NestJS architecture, including controllers, providers and modules
- Create controllers to handle routes and validate requests with DTOs
- Implement services and dependency injection, including custom providers
- Organise applications using feature, shared and global modules
- Apply validation and exception handling using pipes and filters
- Configure middleware, interceptors and guards for requests and auth checks
- Connect a NestJS application to MongoDB using Mongoose schemas and models
- Deploy a NestJS application to platforms such as Heroku and Render

10 Modules, 39 Topics

DAY 1**Core Fundamentals of NestJS and Application Structure****01****Introduction to NestJS****TOPICS**

- What is NestJS?
- Why use NestJS over Express?
- **Architecture overview:** Controllers, Providers, Modules
- Nest CLI and project structure

02**Setting Up a New Project****TOPICS**

Installing Nest CLI · Creating a new project · Exploring project files and folder structure · Running the application in development mode

03**Controllers and Routing****Lab****TOPICS**

Creating controllers · Route handling (GET, POST, PUT, DELETE) · Route parameters and query strings · Using DTOs for request validation

04**Providers and Dependency Injection****Lab****TOPICS**

Creating services · Injecting services into controllers · Custom providers · Singleton pattern in NestJS

05**Modules and Application Architecture****Lab****TOPICS**

Creating and importing modules · Feature modules and shared modules · Global modules

DAY 2**Intermediate Features, Database, and Deployment****06****Data Validation and Exception Handling****Lab****TOPICS**

Using class-validator and class-transformer · Pipes for validation · Built-in and custom exceptions · Global exception filters

07**Lab**

Middleware, Interceptors & Guards

TOPICS

- Middleware for request logging
- Interceptors for response transformation and logging
- Guards for basic auth checks

08**Lab**

Connecting to a Database with MongoDB

TOPICS

- Installing Mongoose and integrating with NestJS
- Configuring MongoDB connection using MongooseModule
- Defining Schemas and Interfaces
- Using Mongoose Models for CRUD operations
- Implementing UserService with MongoDB logic
- Querying documents and using projection, sorting

09

Intro to Testing and Postman Integration

TOPICS

- Unit testing basics with Jest
- Writing test cases for services and controllers
- Using Postman to test APIs

10**Lab**

Deployment of NestJS Application

TOPICS

Preparing app for production (build process) · Setting environment variables

DEPLOYMENT ON:

Heroku (via CLI) · Render / Railway (via GitHub integration)

Practise What You Learn

#	MODULE	ACTIVITY
03	Controllers and Routing	Create a sample UsersController to handle basic CRUD endpoints
04	Providers and Dependency Injection	Build a UsersService and inject into controller
05	Modules and Application Architecture	Modularize the user feature
06	Data Validation and Exception Handling	Add validation to user DTOs and handle bad input gracefully
07	Middleware, Interceptors & Guards	Implement a simple logging middleware and guard
08	Connecting to a Database with MongoDB	Connect UserService to MongoDB and perform CRUD using Mongoose
10	Deployment of NestJS Application	Deploy sample NestJS app

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

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Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

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