

KOENIG SOLUTIONS · COURSE OUTLINE

NEXT JS Full Stack Development with React

Learn to build full stack applications with Next.js 15 and React 19, from routing and styling to server actions, databases and deployment.

5 Days

40 HOURS

34

TOPICS

17

HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers Next.js 15 and React 19 core concepts, including project setup with the App Router and server versus client components. It then addresses file-system based routing, navigation and styling strategies such as Tailwind CSS before moving into forms, server actions, optimistic updates and state management. The course also covers building REST API routes, integrating databases with Prisma, and handling CRUD operations, error handling and middleware. It concludes with a final task tracker project covering SEO and metadata, rendering strategies, deployment to Vercel and performance optimization.

WHO THIS COURSE IS FOR

Full Stack Developers

Front-End Developers

React Developers

Web Application Developers

PREREQUISITES

- Working Knowledge of React JS and JS ES6

LEARNING OBJECTIVES

- Explain new features introduced in Next.js 15 and React 19
- Configure a Next.js 15 project using the App Router structure
- Implement file-system based routing with dynamic and catch-all routes
- Apply styling strategies including Tailwind CSS and dark mode
- Build forms using server actions and optimistic UI updates
- Develop REST API routes and integrate databases with Prisma
- Implement CRUD operations with error handling and middleware
- Deploy a full stack application to Vercel with performance tuning

34 Topics

DAY 1**Next.js 15 and React 19 - Core Concepts and Setup**

TOPICS

3 Labs

- Overview of Full Stack Development with Next.js

What's New in Next.js 15?

TOPICS

Updated Compiler (Turbopack improvements) ·
Enhanced Partial Prerendering (PPR) ·
Streaming improvements

React 19 New Features:

TOPICS

useFormStatus, useOptimistic, Server Actions

Project Setup:

TOPICS

- Node.js, VS Code, Git/GitHub
- Create a Next.js 15 App using create-next-app with App Router
- Understanding app/, pages/, public/, and components/ structure
- Server vs Client components

DAY 2**App Routing, Navigation and Styling in Next.js 15**

TOPICS

3 Labs

- File-System Based Routing (app/ directory)
- Route Groups, Layouts, Parallel Routes
- Dynamic Routes and Catch-All Routes
- Navigation with <Link> and useRouter, usePathname()

STYLING STRATEGIES:

- CSS Modules
- Global CSS
- Tailwind CSS Setup and Theming
- CSS Variables and Dark Mode

TOPICS

3 Labs

- Building Forms with `<form action={}>` in React 19
- Server Actions in Next.js 15 (with optimistic updates)
- Form State with `useFormState`, `useFormStatus`

REACT STATE MANAGEMENT:

- `useState`, `useEffect`, `useOptimistic`
- Client vs Server Rendering
- Intro to Validation (Zod/Yup with Server Actions)

TOPICS

3 Labs

- REST API in Next.js 15: `app/api/` structure

CONNECTING TO DATABASES:

- Prisma ORM with MySQL / SQLite
- Migrations and Model Generation
- Secure Environment Config (`.env.local`)
- CRUD Operations via Server Actions and API Routes
- Error Handling and Middleware

TOPICS

5 Final Projects

- **Final Project Walkthrough:** Task Tracker App
- SEO and Metadata with Next.js 15 (`generateMetadata`)
- Static vs Dynamic Rendering
- Deployment to Vercel (with ENV variables setup)
- Performance Optimization Tips

Practise What You Learn

MODULE	ACTIVITY
Next.js 15 and React 19 - Core Concepts and Setup	LABS ■ Initialize a Next.js 15 project with TypeScript ■ Create a basic app with Home, About, Contact pages ■ Use server/client components effectively
App Routing, Navigation and Styling in Next.js 15	LABS ■ Create user dashboard with nested and grouped routes ■ Add Tailwind CSS and implement responsive design ■ Implement sticky navbar with active state using <code>usePathname()</code>
React 19 Forms, Server Actions and State Handling	LABS ■ Create contact form with server action and validation ■ Add optimistic UI using <code>useOptimistic</code> ■ Build a small To-Do App with form and state handling
API Routes, Database Integration and Backend Services	LABS ■ Setup Prisma and create schema for a Task model ■ Create CRUD APIs in <code>/app/api/tasks</code> ■ Connect frontend to API using <code>fetch()</code> and Server Actions
Final Project, Deployment and Optimization	FINAL PROJECT ■ Task Tracker Web App ■ Add, update, delete tasks ■ Uses Prisma + SQLite/MySQL ■ Tailwind-based responsive UI ■ Form submission via Server Actions

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

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

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