KOENIG SOLUTIONS · COURSE OUTLINE

React + ASP.NET Core: Full-Stack Development with JWT Auth & EF Core API

Learn to build full-stack applications with React and ASP.NET Core, from components and routing to JWT-secured APIs and deployment.

5 Days	40	21
DURATION	TOPICS	HANDS-ON LABS

COURSE OVERVIEW

This course covers React fundamentals, including JSX, components, props and state, followed by component communication, React Router navigation and the Context API. It then moves to hooks, data fetching, Redux Toolkit and performance optimisation, before addressing JWT authentication, connecting React to an ASP.NET Core API, and deploying the React app. The final modules cover building an ASP.NET Core Web API with Entity Framework Core, securing endpoints with JWT, integrating the API with React, and deploying the complete full-stack application through a blog management project.

WHO THIS COURSE IS FOR

- **Frontend Developers**
- **Backend Developers**
- **Full-Stack Developers**
- **API Developers**
- **Web Developers**

PREREQUISITES

- Knowledge of JavaScript and Dot Net Programming

LEARNING OBJECTIVES

- Explain core React concepts such as JSX, components, props and state
- Implement navigation between pages using React Router
- Apply the Context API to manage global state
- Use React hooks including useState, useEffect and useReducer
- Fetch and manage data from APIs with Axios and fetch
- Configure Redux Toolkit for advanced state management
- Implement JWT authentication for login and secured routes
- Build and secure an ASP.NET Core API with EF Core

COURSE SYLLABUS

40 Topics

DAY 1 React.js Fundamentals

Introduction to React

3 Labs

TOPICS

- What is React? Key Features and Advantages.
- Setting up the development environment (Node.js, npm/yarn, React)

Core Concepts

TOPICS

JSX and Virtual DOM · Functional and Class Components · Props and State

Basic Events and Rendering

TOPICS

Handling Events in React · Conditional Rendering

DAY 2 Intermediate React Development

Component Communication

4 Labs

TOPICS

Lifting State Up · Parent-Child Communication via Props

React Router Basics

TOPICS

- Setting up React Router
- Creating Multi-Page Applications
- Navigation using Link and useNavigate (React Router v6+)

State Management

TOPICS

Introduction to Context API · Creating and Using Context for Global State

DAY 3 Advanced React and API Integration

React Hooks

4 Labs

TOPICS

useState, useEffect, useRef, and useReducer · Custom Hooks for Reusable Logic

Data Fetching

TOPICS

Fetching Data from APIs using fetch and Axios · Managing Loading, Success, and Error States

Advanced State Management

TOPICS

Introduction to Redux Toolkit · Configuring Redux Store and Slices

Performance Optimization

TOPICS

- Memoization (React.memo, useMemo, and useCallback)

DAY 4 React Authentication and Deployment

Authentication with JWT

4 Labs

TOPICS

- Implementing Login and Logout functionality
- Storing JWT securely (in memory or HttpOnly cookies)

Connecting React with ASP.NET Core API

TOPICS

- Setting up CORS to enable cross-origin requests
- Consuming secured API endpoints

React App Deployment

TOPICS

- Building and Optimizing the React App for Production
- Deployment

DAY 5 ASP.NET Core 6 API Development and Integration

Building a Web API

6 Labs

TOPICS

- Creating an ASP.NET Core Web API Project
- Implementing CRUD Operations using Entity Framework Core
- Securing APIs with JWT Authentication

Integration with React

TOPICS

Serving the React App from ASP.NET Core · API Integration for Full-Stack Functionality

Deployment

TOPICS

- Deploying the Full-Stack Application (API + React)

Final Project: Blog Management System

FRONTEND (REACT)

- Multi-page blog app with routing (Home, Blog List, Blog Details, Admin Panel)
- User authentication and role-based access (Admin vs. Regular User).
- API Integration for blogs and comments

BACKEND (ASP.NET CORE 6 API)

- User Authentication with JWT
- CRUD operations for blogs and comments
- Secure endpoints and database integration using EF Core

DEPLOYMENT

- Fully deployed application (React + ASP.NET Core API)

HANDS-ON LABS

Practise What You Learn

MODULE	ACTIVITY
React.js Fundamentals	■ **Create a basic React app with two components:** Header and ItemList ■ Render a list of items dynamically using map() ■ Add event handling to toggle the visibility of the item list
Intermediate React Development	■ Create a simple blog application: ■ **Pages:** Home, Blog List, Blog Details ■ Use React Router for navigation ■ Manage global state for the blog data using Context API
Advanced React and API Integration	■ Extend the blog app: ■ Fetch blog data from a public API (e.g., JSONPlaceholder) ■ Display a loader while fetching data ■ Implement filtering and pagination for the blog list

MODULE	ACTIVITY
React Authentication and Deployment	■ Add a login page to the blog app: ■ Use JWT authentication to restrict access to certain features ■ Save user session and display user-specific data ■ Deploy the app to a cloud platform
ASP.NET Core 6 API Development and Integration	■ Build a secured API for the blog app: ■ **Endpoints:** Blog CRUD, User Login, and Commenting ■ Use Entity Framework Core with a SQL Server database ■ Secure the API endpoints with JWT authentication ■ Integrate the API with the React app ■ Deploy the complete full-stack application

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.

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