

Days: 3

Prerequisites: Proficiency in JavaScript. Familiarity with HTML and CSS basics ## Next Courses.

Audience: This course is designed for Software Developers, Junior Engineers, and professionals with JavaScript experience seeking React skills.

Description: This intensive three-day course offers an in-depth exploration of modern React development. Moving beyond basic “Hello World” examples, this curriculum emphasizes the architectural patterns needed to create scalable, interactive Single Page Applications (SPAs). Through a combination of lectures and practical hands-on labs, participants will master the React ecosystem: from the Virtual DOM and JSX to managing complex state with Hooks and the Context API. The course avoids outdated class-based patterns in favor of modern functional components and custom hooks. The experience concludes with a comprehensive Capstone Project, where students will design and deploy a fully functional Weather Dashboard, reinforcing their ability to deliver production-ready code.

Course Objectives: In this course, you will:

- Build composable user interfaces using Functional Components and JSX.
- Manage application state effectively with Props and the useState hook.
- Synchronize components with APIs and external systems using useEffect.
- Navigate single-page applications (SPAs) using React Router.
- Architect global state solutions with the Context API to avoid prop-drilling.
- Develop custom hooks to create clean, reusable business logic.

OUTLINE:

AI & AUTOMATION: WHAT EVERY BUSINESS LEADER NEEDS TO KNOW

- Definition and importance of AI-powered automation
- Introduction to AIOps (AI for IT and business operations)
- Real-world examples of AI transforming industries
- Exploration of AI-powered business workflows

REACT ECOSYSTEM AND ENVIRONMENT

- Lecture: The React Philosophy: Virtual DOM and Component Trees
- Lecture + Lab: Setting Up a Modern Environment with Vite
- Lecture: JSX Deep Dive: Expressions and Attributes
- Lecture + Lab: Converting HTML Mockups to JSX

COMPONENT ARCHITECTURE

- Lecture + Lab: Creating Composable Functional Components
- Lecture: Props, PropTypes, and Passing Data

- Lecture + Lab: Extracting Components for Reusability
- Lecture: Styling in React: CSS Modules vs Inline Styles
- Lecture + Lab: Styling Components and Conditional Classes

STATE AND INTERACTIVITY

- Lecture: State vs Props: The One-Way Data Flow
- Lecture + Lab: Handling Events and Synthetic Events
- Lecture + Lab: Managing Local State with useState
- Lecture + Lab: Building Interactive Counters and Toggles

LISTS AND COMPLEX STATE

- Lecture: Rendering Lists and the Importance of Keys
- Lecture + Lab: Mapping Data Arrays to UI Components
- Lecture: Immutability Patterns for Arrays and Objects

- Lecture + Lab: CRUD Operations on State Arrays

FORMS AND INPUTS

- Lecture: Controlled vs Uncontrolled Components
- Lecture + Lab: Handling Multiple Inputs and Form Objects
- Lecture: The useRef Hook: Accessing the DOM
- Lecture + Lab: Managing Focus and Uncontrolled Inputs

EFFECTS AND LIFECYCLE

- Lecture: Understanding the Component Lifecycle and useEffect
- Lecture + Lab: Managing Side Effects and Document Titles
- Lecture: The Dependency Array and Cleanup Functions
- Lecture + Lab: Setting Up Subscriptions and Timers

DATA FETCHING AND CUSTOM HOOKS

- Lecture: Asynchronous React: Patterns and Best Practices
- Lecture + Lab: Fetching Data from a REST API
- Lecture: Logic Reuse with Custom Hooks
- Lecture + Lab: Building a Reusable useFetch Hook

GLOBAL STATE MANAGEMENT

- Lecture: The Context API and Prop Drilling
- Lecture + Lab: Creating a User Authentication Context
- Lecture + Lab: Consuming Context with useContext

ROUTING WITH REACT ROUTER

- Lecture: Single Page Application Concepts
- Lecture + Lab: Setting Up Navigation and Routes
- Lecture: Dynamic Routing and URL Parameters
- Lecture + Lab: Building a “Details” Page with Route Params

FINAL CAPSTONE PROJECT

- Lecture + Lab: Project Setup: Weather Dashboard Architecture
- Lecture + Lab: Milestone 1: Building the Search and History Components
- Lecture + Lab: Milestone 2: Integrating the

Weather API

- Lecture + Lab: Milestone 3: Implementing Global State for User Preferences