

React Development with Modern Architecture

Duration: 3 Days

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Day 1 – React Fundamentals & Components

React Fundamentals

- Introduction to React
- What is React?
- SPA vs MPA
- Benefits and Use Cases
- Setting up React with Vite
- Project Structure

React Basics

- JSX Syntax
- Functional Components
- Component Composition
- Props
- State
- Event Handling

React Hooks (Core)

- Introduction to Hooks
- useState
- useEffect
- useRef

Working with Forms

- Controlled Components
- Form Handling
- Input Validation

Styling React Applications

- CSS Modules
- SASS
- Tailwind CSS
- Conditional Styling

Hands-on

- Create a React application
- Build reusable functional components
- Develop a Registration/Login Form
- Apply responsive styling

Day 2 – Routing, State Management & API Integration

React Router

- Navigation
- Route Parameters
- Dynamic Routing
- Nested Routes
- Protected Routes

State Management

- Lifting State Up
- Context API
- useContext

Advanced Hooks

- useMemo
- useCallback
- Custom Hooks

API Integration

- Fetch API
- Axios
- Loading & Error Handling
- CRUD Operations

Backend Integration

- Connecting React with Node.js APIs
- Firebase Integration (Overview)

Authentication

- Login Flow
- JWT Authentication
- Token Storage (localStorage & Cookies)
- Role-Based Access
- Logout Flow

Hands-on

- Build a multi-page application
- Consume REST APIs
- Implement Authentication
- Protect Routes

Day 3 – Enterprise React Development

React Application Architecture

- Component-Based Architecture
- Feature-Based Folder Structure
- Reusable Components
- Environment Variables
- Best Practices

React with Microservices

- Monolithic vs Microservices
- Frontend in a Microservices Architecture
- API Gateway
- Communicating with Multiple Backend Services

Performance Optimization

- React.memo
- useMemo
- useCallback
- Lazy Loading
- Code Splitting

TypeScript with React

- React + TypeScript Setup
- Typing Props
- Typing State
- Interfaces & Types

Testing

- Jest
- React Testing Library

- Component Testing

Build & Deployment

- Production Build with Vite
- Deploy to Netlify
- Deploy to Vercel
- Firebase Hosting