



TECHNOCATION FREELANCING TRAINING INSTITUTE & SOFTWARE HOUSE

Professional React.js Course Outline

Module 1: Introduction to React.js

- What is React.js? Features & Benefits
- Understanding Component-Based Architecture
- React vs. Other Frontend Frameworks (Vue, Angular)
- Setting Up a React Development Environment
- Understanding JSX (JavaScript XML)

Module 2: Core React Concepts

- Components (Functional vs. Class Components)
- Props & State Management
- Handling Events in React
- React Lifecycle Methods & Hooks
- Conditional Rendering & Lists

Module 3: React Hooks & State Management

- Introduction to React Hooks (useState, useEffect)
- Advanced Hooks (useReducer, useMemo, useRef, useContext)
- Managing Global State with Context API
- Comparing Context API vs. Redux for State Management

Module 4: Working with Forms & User Input

- Controlled vs. Uncontrolled Components
- Handling Form Inputs & Validations
- Managing Forms with React Hook Form
- File Upload Handling in React

Module 5: Routing in React with React Router

- Introduction to React Router
- Setting Up Navigation & Route Parameters
- Private & Protected Routes
- Handling 404 Pages & Redirects

Module 6: Managing State with Redux Toolkit

- Introduction to Redux & Redux Toolkit
- Setting Up Redux Store & Reducers
- Actions, Dispatchers & Middleware (Redux Thunk)
- Connecting Redux with React Components
- Performance Optimization in Redux

Module 7: API Integration & Data Fetching

- Fetching Data with Fetch API & Axios
- Handling Promises & Async/Await in React
- Error Handling & Data Caching
- Implementing Infinite Scroll & Pagination

Module 8: Styling in React Applications

- CSS Modules & Styled Components
- Using Tailwind CSS & Bootstrap in React
- Material UI & Chakra UI for Professional UI Design
- CSS-in-JS & Theming in React

Module 9: Performance Optimization & Best Practices

- Lazy Loading & Code Splitting with React.lazy
- Memoization Techniques (useMemo, useCallback)
- Optimizing Large Lists with React Virtualization
- Avoiding Unnecessary Re-renders

Module 10: Testing & Debugging in React

- Introduction to Unit & Integration Testing
- Writing Tests with Jest & React Testing Library
- Debugging with React DevTools
- Handling Errors Gracefully in React

Module 11: Deployment & Production Optimization

- Deploying React Apps on Vercel, Netlify & Firebase
- Setting Up CI/CD for React Projects
- SEO Optimization in React (Server-Side Rendering, Meta Tags)
- Progressive Web Apps (PWA) with React

Module 12: Advanced Topics & Final Project

- Server-Side Rendering (SSR) with Next.js
- State Management with Recoil & Zustand
- WebSockets & Real-Time Data in React
- Final Capstone Project (Full-Stack React App)