

## React JS

**Course Duration: 40 Hours**

**Course Code: REACT-101**

### 1. Course Overview

The **React JS Course** is designed to help learners build modern, scalable, and interactive web applications using React. This course covers the fundamentals of React, component-based architecture, state management, hooks, routing, and integration with backend APIs. Learners will also gain hands-on experience by building real-world projects that demonstrate best practices for efficient front-end development.

### 2. What You'll Learn

- Understand the fundamentals of React and component-based architecture
- Build reusable UI components with JSX
- Manage application state with Props, State, and Hooks
- Work with React Router for navigation and routing
- Integrate RESTful APIs with React applications
- Implement advanced concepts such as Context API and Redux for state management
- Use modern JavaScript (ES6+) features within React applications
- Optimize performance and debug React applications
- Deploy React applications to production environments

### 3. Target Audience

- Beginners who want to start a career in front-end development
- Web developers transitioning to modern JavaScript frameworks
- Full-stack developers who want to add React to their skill set
- Professionals preparing for jobs as React Developers or Frontend Engineers

### 4. Pre-Requisites

- Basic understanding of **HTML, CSS, and JavaScript**
- Familiarity with ES6 features (let, const, arrow functions, classes, etc.) is recommended
- Knowledge of Git and Node.js basics will be helpful

### 5. Course Content

#### **Module 1: Introduction to React**

- What is React?
- Setting up the development environment
- Understanding Virtual DOM and JSX

#### **Module 2: Components and Props**

- Functional and Class Components
- Passing and validating Props
- Component lifecycle overview

#### **Module 3: State and Events**

- Managing State in React
- Handling user input and events

- Conditional rendering and lists

#### **Module 4: React Hooks**

- Introduction to Hooks
- use State, use Effect, and useReducer
- Custom hooks for reusability

#### **Module 5: Routing in React**

- Introduction to React Router
- Nested routes and route parameters
- Navigation with links and redirects

#### **Module 6: State Management**

- Context API for global state
- Introduction to Redux
- Actions, Reducers, and Store

#### **Module 7: Working with APIs**

- Fetching data using Fetch and Axios
- Handling asynchronous operations
- Error handling in API integration

#### **Module 8: Styling in React**

- CSS Modules and Styled Components
- Material-UI and Tailwind integration
- Responsive design with React

#### **Module 9: Testing and Debugging**

- Unit testing with Jest
- React Testing Library
- Debugging React applications

## Module 10: Deployment and Best Practices

- Optimizing React apps for performance
- Building and deploying React apps
- Best practices and project structuring

