

## React.js (3 Months)

**Duration:** 3 Months (~120 Hours)

**Mode:** Live Online / Classroom

**Role after completion:** React Frontend Developer

**Certifications prepared:** Meta React Developer, FreeCodeCamp Front End Libraries

**Tools & Technologies:** React, JSX, Hooks, React Router, Context API, Redux Toolkit, Axios/Fetch, Material UI/Ant Design, Vite/CRA, Jest/RTL, Git & GitHub

### Syllabus

#### Week 1: React Foundations

- Project scaffolding (Vite/CRA), folder structure
- Components, props, state, JSX & virtual DOM
- Dev tools, linting & formatting setup
- Assignment

#### Week 2: Rendering & Events

- Conditional rendering patterns
- Lists & keys, controlled components
- Event handling and accessibility basics
- Assignment

#### Week 3: Hooks Deep Dive

- useState, useEffect (lifecycle & cleanup)
- Custom hooks (fetch, debounce, form)
- Data fetching & race condition handling
- Assignment

#### Week 4: Routing & Code Splitting

- React Router v6: routes, nested routes, params
- Protected routes, lazy loading, Suspense
- Navigation patterns & hooks
- Assignment
- Mock Interview 1

#### Week 5: API & Forms

- Axios vs Fetch; error, retry & cancel strategies
- Forms: React Hook Form/Formik, validation patterns
- CRUD flows and optimistic updates

- 
- Assignment

### **Week 6: State Management**

- Context API for app state
- Redux Toolkit: slices, thunks, RTK Query (basics)
- Performance: memo, useMemo, useCallback
- Assignment

### **Week 7: UI Libraries & Testing**

- Material UI/Ant Design components, theming, data grid
- Performance profiling, Lighthouse audits
- Testing with Jest & React Testing Library
- Assignment

### **Week 8: Build, Deploy & Security**

- Env configs, feature flags, error boundaries
- Deploy to Vercel/Netlify; preview environments
- Security: sanitization, dependency hygiene
- Assignment
- Mock Interview 2

### **Projects**

- React Admin Dashboard (auth, protected routes, tables & filters)
- E-commerce Frontend (catalog, cart, checkout UI, state)
- Blog/News SPA (routing, API, pagination, search)