

REACTJS SYLLABUS

Module 1: Introduction to ReactJS

- What is ReactJS and why use it
- SPA (Single Page Application) concept
- Virtual DOM vs Real DOM
- Setting up environment (Node.js, npm)
- Installing React using Create React App / Vite
- Project structure overview

Module 2: JSX & Components

- Introduction to JSX
- Functional Components
- Component Structure & Naming
- Embedding expressions in JSX
- Props (Passing data between components)
- Component Reusability

Module 3: State & Event Handling

- What is State
- useState Hook
- Handling user events (click, input, submit)
- Controlled vs Uncontrolled Components
- Conditional Rendering

Module 4: Lists & Forms

- Rendering lists with map()
- Keys in React
- Forms in React

- Handling multiple inputs
- Form validation basics

Module 5: React Hooks

- Introduction to Hooks
- useState (deep understanding)
- useEffect (lifecycle handling)
- useRef
- useContext

Module 6: Advanced Hooks

- Custom Hooks
- useReducer
- useMemo
- useCallback
- Performance optimization techniques

Module 7: Routing

- Introduction to Routing
- Installing React Router
- Route, Link, NavLink
- Dynamic Routing
- Nested Routes
- 404 Page Handling

Module 8: API Integration

- Fetch API / Axios
- GET, POST, PUT, DELETE requests
- Handling loading & error states
- Displaying dynamic data

Module 9: State Management

- Prop Drilling problem
- Context API
- Introduction to Redux
- Redux Toolkit basics
- Managing global state

Module 10: Styling in React

- CSS Modules
- Inline Styling
- Styled Components
- Using Tailwind CSS
- UI Libraries (Material UI basics)

Module 11: Forms & Validation (Advanced)

- Controlled Forms
- Validation using libraries
- Handling complex forms
- Error handling & UX improvements

Module 12: Authentication & Security

- Login/Signup UI
- JWT Authentication basics
- Protected Routes
- Role-based access control

Module 13: Performance Optimization

- Code Splitting
- Lazy Loading
- Memoization techniques
- Avoiding unnecessary re-renders

Module 14: Testing Basics

- Introduction to Testing
- Unit Testing with Jest
- Component Testing basics

Module 15: Deployment

- Build process
- Hosting on Netlify / Vercel
- Environment variables
- Production optimization

Module 16: Real-World Projects

- Todo App
- Blog App (API based)
- E-commerce UI
- Admin Dashboard