REACT *syllabus*

🧠 Phase 1: Fundamentals (Scratch)

Duration：١–٢ weeks

✅ *HTML, CSS & JS Basics (Brush-up)*

- HTML5, CSS3
- JavaScript ES6+ (let/const, arrow functions, template literals)
- DOM Manipulation
- Fetch API
  Array & Object methods (map, filter, reduce)

✅ *Introduction to React*

- What is React?
- SPA vs MPA
- Installation (create-react-app, Vite)
- Folder Structure
- JSX and Babel
- Functional vs Class Components
  Props and State

✅ *React Basics*

- Handling Events
- Conditional Rendering
- List Rendering (.map)
- Forms and Controlled Components
  useState Hook

🚀 Phase 2: Intermediate Concepts

Duration：٢–٣ weeks

✅ *Component Deep Dive*

- Component Composition
- Lifting State Up
  Reusability and DRY Principles

✅ *React Router*

- `react-router-dom setup`
- Route, Link, NavLink
- useParams, useNavigate
- Nested Routes
  Route protection (basic auth guard)

✅ *useEffect Hook*

- useEffect for side effects
- Dependency arrays
  Cleanup function

✅ *Forms (Advanced)*

- Input validations
- Custom hooks for forms
  Libraries: Formik + Yup

💻 Phase 3: Advanced React

Duration: ٣-٤ weeks

✅ *State Management*

- Props Drilling Problem
- Context API
- useReducer
- Redux Toolkit (RTK)
  Zustand (modern alternative)

✅ *HTTP Requests*

- Axios vs Fetch
- REST API Integration
- useEffect + async calls
  Error Handling & Loading States

✅ *Custom Hooks*

- What & Why
- Writing your own hooks

✅ *Performance Optimization*

- React.memo
- useCallback
- useMemo
- Lazy loading (React.lazy, Suspense)
  Code splitting

✅ *Testing*

- Unit Testing with Jest
- Component Testing with React Testing Library

📱 Phase 4: Ecosystem & Mastery

Duration: ٢-٤ weeks

✅ *React with TypeScript*

- Why TypeScript?
- Props & State types
  Typing events and hooks

✅ *Next.js (BONUS for Mastery)*

- File-based routing
- SSR, SSG, ISR
- API routes
  App Router (Next 13+)

✅ *Animations*

- Framer Motion
- React Transition Group

✅ *PWA & Deployment*

- Hosting: Vercel / Netlify / Firebase
- Lighthouse Performance checks
  Convert React App into PWA

🛠️ Projects (At Every Stage)

Stage	Project Ideas
Beginner	Portfolio, Calculator, To-Do App
Intermediate	Blog App, Weather App, Notes App
Advanced	E-commerce, Chat App (Socket.io + MERN), Admin Dashboard
Master	Full-stack App (MERN), Next.js SaaS-style App