



TECHNOCATION FREELANCING TRAINING INSTITUTE & SOFTWARE HOUSE

Professional Next.js Course Outline

Module 1: Introduction to Next.js

- What is Next.js? Features & Benefits
- Next.js vs. React.js: Key Differences
- Understanding Server-Side Rendering (SSR) & Static Site Generation (SSG)
- Setting Up a Next.js Project with Create Next App
- Folder Structure & File-Based Routing

Module 2: Pages, Routing & Navigation

- File-Based Routing in Next.js
- Dynamic & Nested Routes
- API Routes for Backend Functionality
- Handling Query Parameters in Next.js
- Implementing Custom 404 Pages

Module 3: Data Fetching in Next.js

- Understanding `getStaticProps` (SSG)
- Using `getServerSideProps` (SSR)
- Combining Incremental Static Regeneration (ISR)
- Fetching Data from REST APIs & GraphQL
- Best Practices for Optimizing API Calls

Module 4: State Management in Next.js

- Local State with `useState` & `useContext`
- Global State Management with Redux Toolkit
- State Management with Recoil & Zustand
- Optimizing Performance with `useMemo` & `useCallback`

Module 5: Authentication & Authorization

- Implementing User Authentication in Next.js
- JWT Authentication with NextAuth.js
- OAuth Integration (Google, GitHub, Facebook Login)
- Role-Based Access Control (RBAC)
- Securing API Routes & Protecting Pages

Module 6: Styling & UI Frameworks

- CSS Modules & Global Styles in Next.js
- Using Tailwind CSS with Next.js
- Material UI, Chakra UI & Styled Components
- Dark Mode & Theme Switching in Next.js

Module 7: Serverless Functions & API Development

- Creating API Endpoints with Next.js API Routes
- Connecting Next.js with MongoDB, Firebase & Supabase
- Handling Webhooks & Background Jobs
- Optimizing API Responses & Error Handling

Module 8: Performance Optimization & Best Practices

- Code Splitting & Lazy Loading
- Image Optimization with next/image
- Caching Strategies & Revalidation
- Improving Performance with Vercel Analytics

Module 9: SEO Optimization & Metadata Handling

- Using next/head for Meta Tags & Open Graph
- Implementing Schema Markup for SEO
- Improving Page Load Speed for SEO Ranking
- Generating XML Sitemaps & RSS Feeds

Module 10: Testing & Debugging in Next.js

- Unit & Integration Testing with Jest & React Testing Library
- Debugging Next.js Apps with DevTools
- Error Handling & Logging Best Practices
- Implementing E2E Testing with Cypress

Module 11: Deployment & CI/CD

- Deploying Next.js Apps on Vercel, Netlify & AWS
- Setting Up CI/CD Pipelines for Automated Deployments
- Environment Variables & Configuration Management
- Server-Side Logging & Error Monitoring

Module 12: Final Project & Certification Preparation

- Building a Real-World Next.js Application
- Best Practices for Scalable & Maintainable Code
- Preparing for Next.js Certification
- Career Paths in Next.js Development