# **📚 Course Outline: Mastering Next.js 15**

## **Module 1: Introduction to Next.js 15**

* What is Next.js? Why use it?
* Differences between Next.js 13/14 and 15
* Understanding the App Router vs Pages Router
* Project Setup with Next.js 15
* Overview of File-Based Routing

## **Module 2: Core Concepts**

* **Pages and Routes**
  + Static and Dynamic Routing
  + Nested Routing
  + Catch-All Routes
* **Layouts and Templates**
  + How layout.js works
  + Persistent UI with Layouts
  + Template for unique page instances
* **Server Components vs Client Components**
  + use client directive
  + When to use Server Components
* **Metadata API**
  + Setting Page Title and Description dynamically

## **Module 3: Styling in Next.js**

* CSS Modules
* Tailwind CSS Integration
* Global CSS and Scoped CSS
* Theming with CSS Variables
* Component Libraries (e.g., Shadcn/UI)

## **Module 4: Data Fetching Strategies**

* Fetching with fetch()
* **Server Actions** (new in Next.js 15)
* use Hook for Promises
* Static Site Generation (SSG)
* Server-Side Rendering (SSR)
* Incremental Static Regeneration (ISR)
* Parallel and Sequential Data Fetching

## **Module 5: Forms and Mutations**

* Building Forms with Server Actions
* Handling Submissions without JavaScript
* Validations: Server and Client
* File Uploads with Next.js 15

## **Module 6: Advanced Routing**

* Route Groups ((group-name))
* Intercepting Routes (@modal/(.)slug)
* Parallel Routes
* Dynamic Segments
* Route Handlers (route.js and route.ts)

## **Module 7: Authentication and Authorization**

* Authentication patterns in App Router
* Building Auth with:  
  + NextAuth.js 5
  + Clerk or Auth0
* Protecting Routes (Middleware, Client-side guards)

## **Module 8: APIs and Backend Integration**

* API Routes with App Router
* Edge Functions
* Middleware for security and logging
* Using Server Actions for backend logic

## **Module 9: Deployment and Production Best Practices**

* Optimizing Images (next/image)
* SEO Optimization (Metadata API, OpenGraph, Twitter Cards)
* Error Handling and Loading States
* Deploying on:  
  + Vercel (Recommended)
  + AWS, DigitalOcean, Netlify
* Environment Variables and Secrets

## **Module 10: Bonus: Real-World Projects**

* Project 1: Blog Website with CMS
* Project 2: E-commerce Storefront
* Project 3: Dashboard/Admin Panel
* Project 4: Full Authentication System

## **Tools and Libraries You’ll Learn**

* **Next.js 15**
* **TypeScript** (strongly recommended)
* **Tailwind CSS**
* **Shadcn/UI** or Radix UI
* **Prisma ORM** (optional for database)
* **NextAuth.js / Clerk**

# **📌 Requirements**

* Basic knowledge of **HTML/CSS/JavaScript**
* (Bonus) Familiarity with **React.js** is a big plus!