■ Full Stack Web Development Syllabus 2025 (6 Months)

Module 1 – HTML5 (2 weeks)

- What is HTML? Structure of a Webpage
- Basic Tags (headings, paragraphs, lists, links, images, tables)
- Forms & Input Elements (text, email, password, radio, checkbox, file upload)
- Semantic HTML (header, footer, section, article, nav, aside)
- Multimedia in HTML (audio, video, iframe, canvas, svg)
- Forms Validation (HTML5 attributes: required, pattern, min/max)
- Meta Tags, SEO Basics with HTML
- Accessibility (alt tags, ARIA roles, WCAG intro)
- Projects: Resume Page, Product Showcase Page

Module 2 – CSS3 (3 weeks)

- Inline, Internal & External CSS
- CSS Selectors (basic, pseudo-classes, pseudo-elements, attribute selectors)
- Box Model, Display Types, Units (px, %, rem, em, vh, vw)
- Positioning (static, relative, absolute, fixed, sticky)
- Flexbox & CSS Grid (layouts)
- Typography (fonts, Google Fonts, text effects)
- Colors, Gradients, Shadows, Transitions & Animations
- Responsive Design (media queries, mobile-first design)
- CSS Variables & Custom Properties
- CSS Best Practices (BEM methodology, modular CSS)
- Projects: Responsive Portfolio Website, Landing Page Clone

Module 3 – JavaScript (5 weeks)

- Core JS: Variables, Data Types, Operators, Loops, Functions, Objects, Arrays
- ES6+ Features (destructuring, spread/rest, template literals, modules)
- DOM Manipulation & Events
- Async JS: Callbacks, Promises, Async/Await, Fetch API
- Advanced JS: Prototypes, this keyword, Event Loop, Storage APIs, OOP in JS
- Projects: To-Do List App, Weather App, Quiz App, Expense Tracker

Module 4 – Git & GitHub (1 week)

- Version Control Basics
- git init, clone, add, commit, push, pull
- Branching & Merging
- Resolving Merge Conflicts
- GitHub Repository & Collaboration (PRs, Issues)
- GitHub Pages (Deploy HTML/CSS/JS site)
- CI/CD Basics with GitHub Actions

Module 5 – React + Tailwind (5 weeks)

- React Basics: JSX, Components, Props, State, Events, Forms
- Advanced React: Hooks, Router, Context API, Redux Toolkit
- Performance Optimization (memo, lazy loading, code splitting)
- UI with Tailwind (utility classes, components, dark mode, animations)
- Extra Libraries: React-Query, React-Three-Fiber, ShadCN UI
- Projects: Blogging Website, Movie Search App, E-commerce Page, 3D Product Showcase

Module 6 – Backend (Node.js + Express + MongoDB) (5 weeks)

- Node.js Basics (modules, npm, event loop)
- Express.js (routes, middleware, error handling)
- REST API Design (CRUD)
- Authentication (JWT, bcrypt, sessions, cookies)
- File Uploads (Multer, Cloud storage basics)
- MongoDB (CRUD, schema design, indexing)
- Mongoose ORM & Aggregation
- Postman for API testing
- Projects: REST API, Auth System, Blog Backend, Chat App Backend

Module 7 – Next.js + TypeScript (4 weeks)

- Next.js: SSR, CSR, SSG, File-based Routing
- Data Fetching (getStaticProps, getServerSideProps, API routes)
- Middleware & Auth in Next.js
- Image Optimization, Fonts & Metadata
- TypeScript Basics (types, interfaces, generics)
- Integration with MongoDB & REST APIs
- Deployment (Vercel, AWS Amplify, EC2)
- Projects: Blog App, Auth System, SaaS Dashboard

Module 8 – Advanced Topics & Career Prep (2 weeks)

- Postman API Collections
- AWS Basics (S3, EC2, Lambda, RDS, Amplify)
- Docker Basics (containerizing Node.js apps)
- Testing (Jest, React Testing Library, Cypress)
- Security Best Practices (Helmet, CORS, sanitization)
- Portfolio Building & Resume Prep
- Mock Interviews + System Design Basics
- Capstone Projects: MERN E-commerce, Social Media Platform, AI Blog Generator

■ Extra Additions for 2025

- Web3 Basics (Wallet login, smart contract intro)

- AI Integration (OpenAI APIs in apps)
- Edge Computing (Cloudflare Workers, Vercel Edge Functions)
- Serverless Functions (AWS Lambda, Netlify Functions)
- Realtime Features (Socket.io, Firebase Realtime DB)
- Accessibility (a11y) for enterprise readiness