

Full Stack Developer

Module 1: Web Development Basics

- What is Full Stack Development?
- Client-side vs Server-side
- Introduction to Web Servers
- Understanding how websites work (HTTP/HTTPS)

Module 2: Front-End Development

HTML5

- Basic structure of HTML
- Tags, Elements, Attributes
- Forms & Validation
- Semantic HTML

CSS3

- Selectors, Properties, Units
- Box Model
- Flexbox & Grid
- Transitions, Animations
- Media Queries & Responsive Design

JavaScript (ES6+)

- Variables, Data Types
- Operators, Loops, Conditionals
- Functions, Arrow Functions
- Arrays, Objects, String Methods
- DOM Manipulation
- Events
- JSON
- Local Storage

Advanced JavaScript

- Callbacks, Promises, Async/Await
- ES6 Modules
- Error Handling
- Debugging Techniques

React.js

- JSX
- Functional Components & Props
- useState, useEffect Hooks
- Forms & Event Handling
- Conditional Rendering
- Lists and Keys
- React Router
- Context API

- Axios (for API calls)
- React Project (Mini)

Module 3: Version Control & Collaboration

- Git Basics: init, commit, push, pull, clone
- Branching and Merging
- Working with GitHub
- GitHub Actions (basics)
- Markdown

Module 4: Backend Development

Option A: Python with Flask

- Python Refresher
- Flask Setup
- Routing & Templates (Jinja2)
- Handling Forms
- Working with Databases (SQLAlchemy)
- REST API development

Option B: Node.js with Express.js

- Node.js Basics
- NPM Modules
- Express.js Routing
- Middleware
- Handling Requests & Responses
- Building RESTful APIs
- Authentication (JWT, Sessions)

Module 5: Databases

Relational Databases (SQL)

- Introduction to SQL
- CRUD operations
- Joins, Indexes, Views
- MySQL or PostgreSQL

NoSQL Database

- MongoDB Basics
- CRUD in MongoDB
- Mongoose with [Node.js](#)

Module 6: Authentication & Authorization

- Session vs Token-Based Auth
- JWT Authentication
- Role-based access
- OAuth (basic intro)

Module 7: API & Web Services

- REST APIs
- HTTP Methods (GET, POST, PUT, DELETE)
- Postman for API Testing
- CRUD API Design
- File Uploads
- Error Handling

Module 8: DevOps & Deployment

- Environment Variables
- CI/CD Basics
- Deployment Platforms:
- Netlify (Frontend)
- Vercel
- Heroku
- Render
- Railway
- Docker (basic introduction)
- Domain + SSL with GitHub Pages or Custom Domain

Module 9: Tools & Ecosystem

- VS Code Shortcuts & Extensions
- Webpack Basics
- Babel
- Linters & Formatters (ESLint, Prettier)

Module 10: Capstone Projects

- Build end-to-end Full Stack Projects with all concepts:
- Blog App – MERN or Flask + React
- E-commerce Website
- Portfolio Website
- Task Management System
- Chat App (with WebSockets) – optional

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