Anant Webtics Full Stack Web Development Curriculum

Module 1: Introduction to Web Development

Duration: 1 Week
Topics:

- What is Web Development?
- Difference between Frontend, Backend, and Full Stack
- How the Web Works (Client-Server Model, HTTP/HTTPS)
- Understanding Web Architecture
- Overview of Web Development Tools (VS Code, Git, Browser DevTools)
- Setting up Development Environment

Practical:

- Setup VS Code, Git, Node.js
- Create your first simple HTML webpage

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Module 2: Frontend Development – HTML5

Duration: 2 Weeks
Topics:

- Introduction to HTML
- Basic Structure of an HTML Page
- HTML Elements, Tags, and Attributes

- Headings, Paragraphs, Lists, Links, Images
- Tables and Forms
- Semantic HTML (header, footer, article, section, nav, etc.)
- HTML5 Features (Audio, Video, Canvas, SVG)
- Accessibility and SEO Basics

Practical:

- Build a “Portfolio Webpage” using HTML only

Module 3: Frontend Development – CSS3

Duration: 2 Weeks
Topics:

- Introduction to CSS
- Inline, Internal, and External CSS
- Selectors, Colors, Units, and Box Model
- Positioning, Display, Float, and Flexbox
- Grid Layouts
- CSS Transitions, Transformations, and Animations
- Media Queries and Responsive Design
- Introduction to Frameworks (Bootstrap or Tailwind CSS)

Practical:

- Build a **Responsive Portfolio Website** using HTML + CSS

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Module 4: JavaScript (ES6+)

Duration: 3 Weeks
Topics:

- Introduction to JS, Syntax, and Data Types
- Variables (var, let, const)
- Operators and Expressions
- Control Structures (if-else, switch, loops)
- Functions (regular, arrow, anonymous)
- Arrays and Objects
- String and Array Methods
- DOM Manipulation (querySelector, events, etc.)
- BOM (window, document, localStorage)
- ES6+ Features (Destructuring, Spread, Rest, Modules, Promises)
- JSON and Fetch API
- Error Handling and Debugging

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Practical:

- Create small projects:
    - Calculator
    - To-Do List
    - Form Validation
    - Weather App (API Integration)

Module 5: Version Control with Git & GitHub

Duration: 1 Week
Topics:

- What is Git and Version Control?
- Installing and Configuring Git
- Basic Commands (init, clone, add, commit, push, pull, branch, merge)
- Working with GitHub
- Understanding Branching and Merging
- Collaborating on Open Source Projects

Practical:

- Upload your project to GitHub
- Create and merge branches

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Module 6: Advanced Frontend – React.js

Duration: 4 Weeks
Topics:

- Introduction to SPA and React Concepts
- Setting up React Environment (Vite or Create React App)
- Components, Props, and State
- Functional vs Class Components
- Event Handling in React

- Conditional Rendering
- Lists and Keys
- Forms and Controlled Components
- React Hooks (useState, useEffect, useRef, useContext, useReducer)
- React Router (Routing and Navigation)
- Context API and State Management
- Integrating APIs (Fetch, Axios)
- React Project Structure and Best Practices
- Deploying React App

Practical:

- Build projects like:
  - React To-Do App
  - Weather App (API)
  - Blog or Portfolio App

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Module 7: Backend Development – Node.js

Duration: 3 Weeks
Topics:

- What is Node.js?
- Node.js Architecture and Event Loop
- Node.js Modules (fs, path, http, os, events)

- NPM (Node Package Manager)
- Creating a basic HTTP server
- Handling Requests and Responses
- File Handling
- Working with Environment Variables (.env)

Practical:

- Create a simple REST API using Node.js

Module 8: Express.js Framework

Duration: 3 Weeks
Topics:

- Introduction to Express.js
- Setting up Express Server
- Middleware and Routing
- Handling POST, GET, PUT, DELETE requests
- Template Engines (EJS, Handlebars, etc.)
- Error Handling and Logging
- Authentication & Authorization (JWT, bcrypt)
- File Uploads (Multer)
- CORS and Security Best Practices

Practical:

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- Build RESTful APIs with CRUD operations
- Build a small project: **User Authentication System**

Module 9: Database – MongoDB

Duration: 2 Weeks
Topics:

- Introduction to Databases and NoSQL Concepts
- Installing and Setting up MongoDB
- MongoDB vs SQL
- Mongo Shell Commands (CRUD operations)
- Connecting MongoDB with Node.js using Mongoose
- Defining Schema and Models
- Performing CRUD with Mongoose
- Relationships and Population
- Indexing and Aggregation

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Practical:

- Create and connect a MongoDB database to an Express app
- Build a **Product Management System**

Module 10: Full Stack Integration (MERN Stack)

Duration: 3 Weeks
Topics:

- Overview of MERN Architecture
- Connecting Frontend (React) with Backend (Express + MongoDB)
- REST API Integration with React
- Handling CORS
- Authentication Flow (Login/Signup)
- JWT-based Authentication in MERN
- CRUD Operations with Full Stack
- Deployment (Frontend + Backend)

Practical:

- Build a **Full Stack Project** like:
  - Blog Application
  - E-Commerce Website
  - Task Management System

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Module 11: Deployment and Hosting

Duration: 1 Week
Topics:

- Hosting Frontend on Netlify/Vercel
- Hosting Backend on Render/Railway/Heroku
- MongoDB Atlas Cloud Database Setup
- Environment Variables in Production

- Continuous Deployment (CI/CD Basics)

Practical:

- Deploy your Full Stack MERN Project

Module 12: Final Project + Interview Preparation

Duration: 2 Weeks
Topics:

- Full Stack Capstone Project
- Resume & GitHub Portfolio Building
- Common Interview Questions (Frontend, Backend, MERN)
- Mock Interview Sessions

Project Ideas:

- E-Commerce App
- Social Media Clone
- Travel Booking Website
- Online Learning Platform

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✅ Bonus Topics (Optional but Recommended)

- TypeScript Basics
- REST vs GraphQL

- WebSockets (Real-time Chat App)
- Payment Gateway Integration (Stripe/Razorpay)