Web Development (Full Stack)

Course Modules & Topics

📑 Module 1: Introduction to Web Development

- How the Web Works (HTTP, DNS, Hosting)

- Frontend vs Backend vs Full Stack

- Overview of Tech Stack (HTML, CSS, JS, Node.js, MongoDB)

🌐 Module 2: HTML & CSS Fundamentals

- HTML Elements, Forms, Tables, Semantic Tags

- CSS Styling, Box Model, Flexbox, Grid

- Responsive Design with Media Queries

- CSS Frameworks (Bootstrap, Tailwind CSS)

💡 Module 3: JavaScript Essentials

- Variables, Data Types, Operators

- Loops, Conditionals, Functions

- DOM Manipulation

- Events and Event Listeners

- ES6 Features (let/const, arrow functions, template literals)

⚛ Module 4: Frontend Framework – React.js

- JSX and Components

- Props and State

- Conditional Rendering, Lists and Keys

- useEffect, useState Hooks

- Routing with React Router

- Forms and Validations

📑 Module 5: Backend Development – Node.js & Express

- Node.js Basics

- Creating RESTful APIs with Express

- Handling Requests, Responses, and Middleware

- Express Routing and Error Handling

- API Security and Rate Limiting

🛢 Module 6: Databases – MongoDB

- Introduction to NoSQL

- MongoDB Basics and CRUD Operations

- Mongoose ODM

- Data Modeling and Relationships

- Aggregation Pipelines

🔒 Module 7: Authentication & Authorization

- User Signup/Login Functionality

- Password Hashing (bcrypt)

- JSON Web Tokens (JWT)

- Role-based Access Control

🚀 Module 8: Deployment & DevOps Basics

- Hosting Frontend (Netlify, Vercel)

- Deploying Backend (Render, Railway, Heroku)

- Environment Variables

- Git & GitHub for Version Control

- CI/CD Basics

Module 9: Testing and Debugging

- Debugging with DevTools

- Postman for API Testing

- Unit Testing with Jest

- E2E Testing Basics (Cypress or Playwright)

Module 10: Capstone Project

- Build and Deploy a Full Stack Web App (e.g., Blog, E-commerce, Task Manager)

- Features: CRUD, Auth, Responsive Design, API Integration

- Team Collaboration (if group project)

- Final Presentation