

Web Development

A. Web & Front-End Foundations

1. Internet & Web Basics

- How websites work
- Client-server model
- HTTP/HTTPS

2. HTML5 Deep Concepts

- Semantic structure
- Forms & Validations
- Media embedding

3. CSS3 Professional Styling

- Flexbox, Grid layouts
- Responsive breakpoints
- Transitions, animations

4. JavaScript (ES6+)

- Variables, scopes
- DOM manipulation
- Fetch API, Promises, Async

Output: Fully responsive website set (Landing page + Portfolio)

B. Modern Front-End (React)

1. React Environment

- Vite/CRA setup
- Project structuring

2. Core React Concepts

- Components, props, state
- Conditional rendering

3. Hooks & State Management

- useState, useEffect
- Custom hooks

4. Navigation & API Integration

- React Router
- Fetching APIs in React

Output: Interactive React App (Dashboard/ToDo/User Panel)

C. Backend Development (Node.js + Express)

1. Node.js Foundation

- Event loop
- File system, events

2. Express.js Advanced

- Routing strategies
- Controllers & middlewares
- Error handling

3. REST API Architecture

- Designing endpoints
 - Validation
 - Security practices
- Output:** Complete REST API with JWT login

D. Databases (MongoDB)

1. Database Fundamentals

- JSON documents
- Collections

2. CRUD Operations

- Create, find, update, delete

3. Schema & Modeling

- Mongoose models
- Relationships

4. Performance

- Indexing
 - Aggregation pipelines
- Output:** Connected DB with user/product/order collections

E. Full-Stack Integration

1. Connecting Front-end & Back-end

- Axios/Fetch
- Token passing

2. Authentication

- JWT
- Role-based access

3. Deployment

- Hosting React
- Hosting Node
- Environment variables

Output: Full-Stack Project (E-Commerce / Salon Booking / LMS)