

## 15 Days - Fundamentals of Backend Development

### *Module 1: Introduction to Backend Development (1 Day)*

- Role of Backend in Web Development
- Introduction to Server, Client, and APIs
- Overview of Backend Technologies (Node.js, Python, PHP, etc.)

### *Module 2: Setting up the Environment (2 Days)*

- Installing and configuring Node.js
- Introduction to Postman for API Testing

### *Module 3: Basics of Node.js and JavaScript for Backend (4 Days)*

- Core concepts: Modules, Events, and Streams
- Creating a basic server with Node.js

### *Module 4: Introduction to Databases (3 Days)*

- Basics of Databases: SQL vs NoSQL
- Setting up MongoDB and MySQL

### *Module 5: Building Simple APIs (5 Days)*

- Creating RESTful APIs with Node.js and Express.js
- Handling routes and requests

## 30 Days - Intermediate Backend Development

### *Includes All 15-Day Modules*

### *Module 6: Advanced Node.js Concepts (5 Days)*

- Middleware in Express.js
- Error Handling and Logging

### *Module 7: Database Operations (5 Days)*

- Advanced CRUD operations in MongoDB
- MySQL joins and queries

### ***Module 8: Authentication and Authorization (5 Days)***

- Session-based Authentication
- JWT (JSON Web Tokens)

### ***Module 9: Deployment Basics (2 Days)***

- Hosting on Platforms like Heroku and AWS
- Environment Variables and Config Management

### ***Module 10: Intermediate Project (5 Days)***

- Build an API-based application with a connected database

## **45 Days - Advanced Backend Development**

### ***Includes All 30-Day Modules***

### ***Module 11: Advanced Database Concepts (5 Days)***

- Indexing and Query Optimization in MongoDB/MySQL
- Database Schema Design Principles

### ***Module 12: RESTful API Design Principles (5 Days)***

- Best practices for designing scalable APIs
- Versioning and Pagination

### ***Module 13: File Handling and Uploads (5 Days)***

- Managing file uploads with Multer
- Storing files in cloud storage (AWS S3)

### ***Module 14: WebSockets and Real-Time Communication (5 Days)***

- Introduction to WebSockets with Socket.io
- Building a basic real-time chat application

### ***Module 15: Advanced Project (10 Days)***

- Develop a fully functional backend system with real-time features

