

# TETHRAL BACKEND DEVELOPMENT CURRICULUM

## COURSE OUTLINE

### WEEK1: INTRODUCTION TO BACKEND DEVELOPMENT

- Overview Server-side Development
- Setting up your development environment
- NodeJS Modules
- File System Module
- Creating HTTP server with HTTP Module
- NPM (Node Package Manager)

### WEEK2: NODE SERVER FRAMEWORKS

- Node Server Frameworks
- Express Framework
- Handling HTTP Requests
- Dynamic Routing

### WEEK3: DATABASES, SCHEMAS AND ORMS

- Databases and ORMs
- MongoDB Connection using Mongoose
- Using Environment Variables to secure sensitive data
- Models & Schema Creation
- Schema Relationships (One-Many, One-one relationships)

### WEEK4: API & POSTMAN

- REST API & HTTP Methods
- Crud Operations (Get, Post, Put, Patch And Delete)
- Testing APIs through postman

**WEEK5: ERROR HANDLING & STATUS CODES**

- Error Handling
- Using try catch to handle errors & exceptions
- Using Express-async-handler for error handling

**WEEK6: AUTHENTICATION, REQUEST VALIDATION & MIDDLEWARES**

- Middlewares
- User Authentication & Authorisation
- JSON Web Tokens, Session and Cookies

**WEEK7: Client – Server Communication**

- Cross-Origin Resource Sharing (CORS)
- HTTPS & Secure Communication
- File Uploads with Multer & Cloudinary

**WEEK8: API INTEGRATION AND HOSTING/DEPLOYMENT**

- Backend API Integration with Client Application
- Unit and Integration Testing
- Deploying and Hosting your Backend API server

**WEEK9: FINAL CAPSTONE PROJECT**

- Overview of Final Project (Ecommerce Backend Server & API)
- Functionality, Usability & Security
- Guidelines and resources

**WEEK10: GUEST SPEAKER SESSION**

- Invite a Backend Developer from the industry.
- Insights and experiences sharing.
- Q&A session with students.

**WEEK11: DESIGN PROJECT**

- Students work on their final projects
- Consultation and feedback sessions

**WEEK12: PROJECT PRESENTATION**

- Create a portfolio.
- Students present their projects.
- Peer reviews and feedback.

*Program wrap-up and reflection*