Curriculum

Week 1: Introduction to Node.js

Session 1 (Day 1)

- Course Overview and Introduction to Node.js
- Setting Up Node.js Development Environment (Node.js, code editor, Postman and npm)
- Writing and Running Your First Node.js Program

Session 2 (Day 2)

- Basic JavaScript Concepts (Variables, Data Types, Operators)
- Working with Modules in Node.js
- Building a Simple Command-Line Application

Week 2: Asynchronous Programming with Callbacks

Session 3(Day 1)

- Understanding Callback Functions
- Working with Asynchronous Functions
- Introduction to Promises

Session 4(Day 2)

- Handling Promises
- Introduction to Async/Await
- Practical Examples of Asynchronous Programming

Week 3: Building Web Applications with Node.js

Session 5(Day 1)

- Introduction to Express.js
- Setting Up an Express.js Application
- Creating Routes and Handling Requests

Session 6(Day 2)

- Middleware in Express.js
- Building a RESTful API with Express.js
- Testing Your API with Postman

Week 4: Working with Data in Node.js

Session 7(Day 1)

- Introduction to MongoDB
- Connecting to a MongoDB Database
- Creating and Querying Collections

Session 8(Day 2)

- Introduction to Mongoose (MongoDB ORM)
- Building a CRUD Application with Node.js and MongoDB
- Error Handling and Validation

Week 5: Building Real-Time Applications with WebSockets

Session 9(Day 1)

- Introduction to WebSockets
- Setting Up a WebSocket Server in Node.js
- Building a Real-Time Chat Application

Session 10(Day 2)

- Broadcasting Messages in Real-Time
- Handling WebSocket Events
- Deploying a WebSocket Application

Week 6: Authentication and Authorization in Node.js

Session 11(Day 1)

- Introduction to Authentication and Authorization
- Implementing User Registration and Login
- Using Passport.js for Authentication

Session 12(Day 2)

- Securing Routes and Resources
- Implementing Role-Based Access Control
- Best Practices for Authentication and Authorization

Week 7: Testing and Debugging in Node.js

Session 13(Day 1)

- Introduction to Unit Testing
- Setting Up Jest Testing Framework
- Writing Unit Tests for Node.js Applications

Session 14(Day 2)

- Continuation of Unit tests for Node.js Applications

Week 8: Final Project and Deployment

Session 15(Day 1)

- Plan for a note-taking application
- Setup and coding

Session 16(Day 2)

- Unit tests with Jest
- Preparing Your Application for Deployment
- Deploying Node.js Apps to Render