Full Stack MERN Developer Course Syllabus for Job Readiness

This course is designed for **IT and Non-IT students** who want to become **job-ready Full Stack MERN (MongoDB, Express.js, React.js, Node.js) Developers**. It covers **JavaScript programming, backend and frontend development, databases, DevOps, cloud deployment, and real-world projects**. The focus is on **hands-on learning, industry-relevant tools, and interview preparation**.

🕐 **Course Duration: 6 Months** 🎯 **Class Duration: 2hrs (Mon to Fry)**

📌 **Prerequisites: No prior coding experience required (Basic IT knowledge is beneficial)**

📖 **Course Modules**

📌 **Module 1: Introduction to Full Stack Development**

- What is Full Stack Development? Overview of **Frontend, Backend & Databases**, Understanding Software Development Lifecycle (SDLC), Full Stack Developer Career Path

📌 **Module 2: JavaScript Programming Fundamentals**

- Introduction to JavaScript & ES6+ Features, Variables, Data Types & Operators, Control Statements & Loops, Functions & Objects in JavaScript, Asynchronous Programming (Promises & Async/Await), Error Handling & Debugging

📌 **Module 3: Frontend Development with React.js**

- Introduction to **React.js & Component-Based Architecture**, JSX & Virtual DOM, State & Props Management, React Hooks (useState, useEffect, useContext), Routing & Navigation with React Router, API Integration & Asynchronous Calls, State Management using **Redux Toolkit**, Building a Single Page Application (SPA)

📌 **Module 4: Backend Development with Node.js & Express.js**

- Introduction to **Node.js & Express.js**

- Setting up a RESTful API, Middleware & Routing, User Authentication with JWT & OAuth, File Handling & Uploads, API Security & Best Practices

📌 **Module 5: Database Management with MongoDB**

- Introduction to **NoSQL & MongoDB**, CRUD Operations in MongoDB, Database Relationships & Schema Design, Working with **Mongoose (ODM)**, Aggregation Framework in MongoDB

📌 **Module 6: Advanced MERN Stack Concepts**

- Integrating Frontend with Backend (React + Node.js), Authentication & Authorization (JWT & Sessions), Payment Gateway Integration (Stripe, PayPal), Building Real-Time Apps with WebSockets & Socket.IO

- Deploying MERN Apps on **Vercel, Netlify & Heroku**

- Caching & Performance Optimization (Redis, CDN)

📌 Module 7: DevOps & Cloud Deployment

- Introduction to **Git & GitHub**, Git Commands & Branching Strategies, CI/CD Pipeline with GitHub Actions, Containerization with **Docker & Kubernetes**, Cloud Deployment on **AWS/GCP/DigitalOcean**

📌 Module 8: Final Project & Interview Preparation

- Full Stack Project Development (E-Commerce, Social Media App, etc.)

- Resume & LinkedIn Profile Optimization

- Mock Interviews & HR Round Preparation

- Soft Skills & Freelancing Opportunities

💡 Tools & Technologies Covered

☑ **Frontend Development**: HTML, CSS, JavaScript, React.js, Redux
☑ **Backend Development**: Node.js, Express.js, REST APIs
☑ **Database**: MongoDB, Mongoose ORM
☑ **Version Control**: Git, GitHub
☑ **DevOps & Cloud**: Docker, AWS, Jenkins, Vercel, Netlify
☑ **Project Management**: JIRA, Agile Methodology

🚀 Final Outcome

By the end of this course, students will be:
☑ **Proficient in MERN Full Stack Development**
☑ **Able to Build & Deploy Web Applications**
☑ **Job-Ready for Full Stack Developer Roles**
☑ **Confident in Coding Interviews & Freelancing**