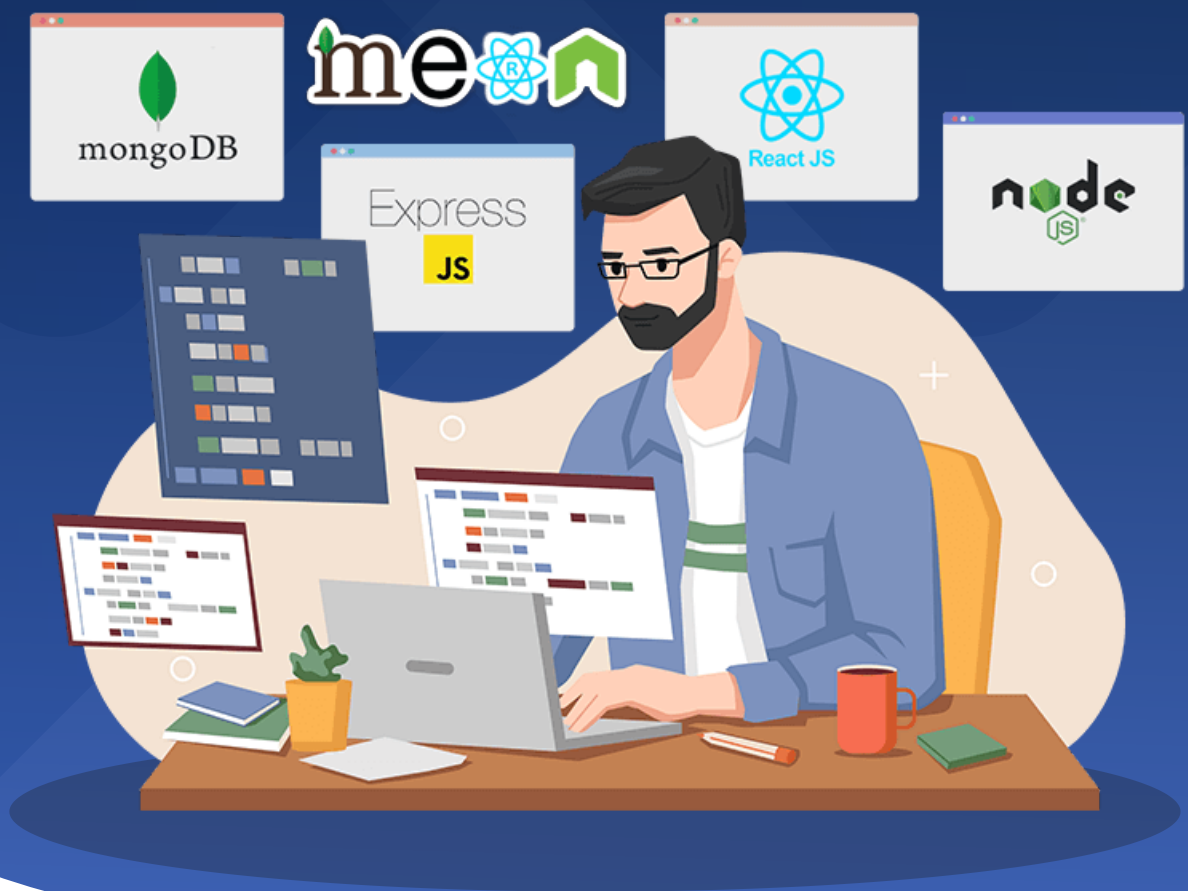


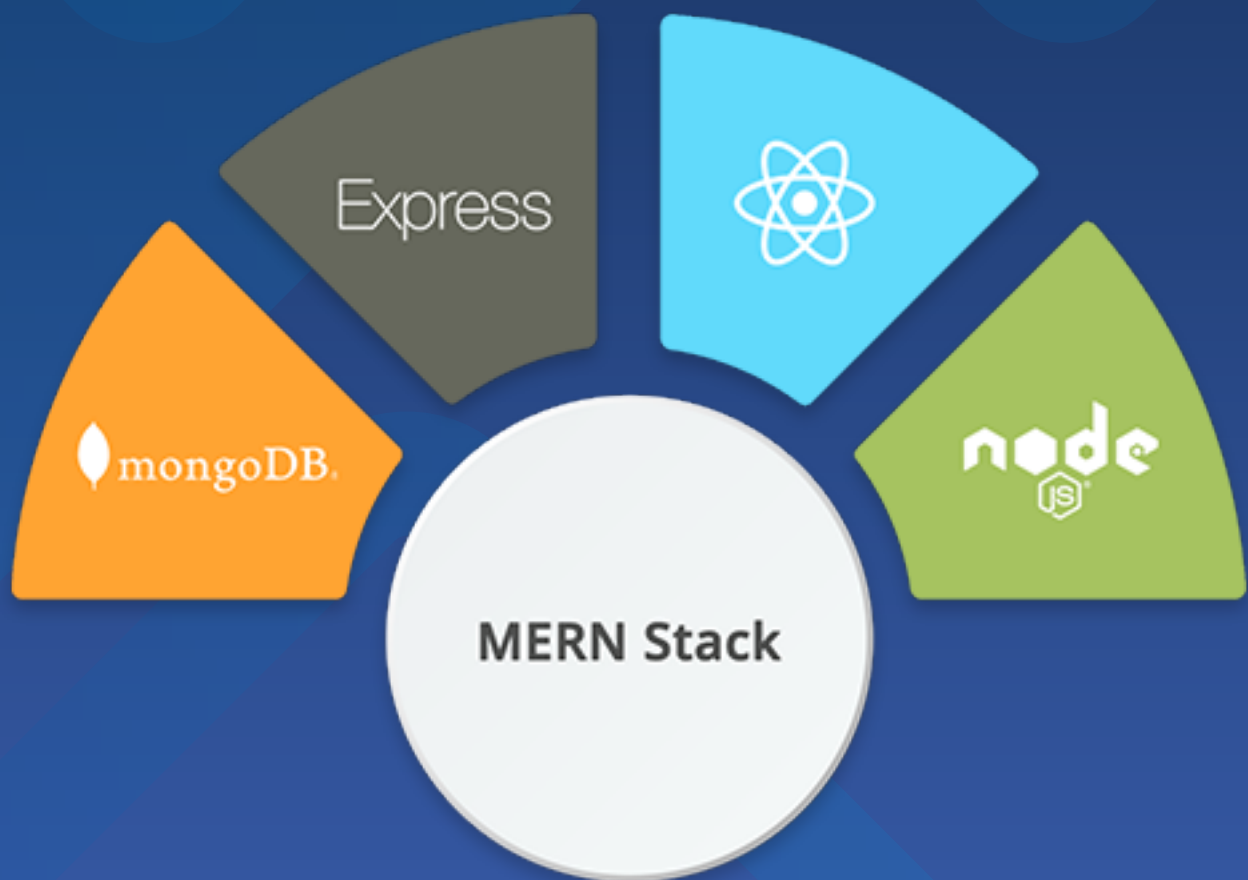
AI-ENHANCED MERN STACK



AN ISO 9001:2015 CERTIFIED ACADEMY

What Is MERN STACK ?

The Next-Gen MERN & AI Full Stack Developer Program Blends The Robust MERN Stack (Mongodb, Express.js, React.js, Node.js) With Modern Artificial Intelligence Tools To Build Intelligent, Scalable, And Responsive Web Applications. Students Will Learn To Create Full-Stack Solutions That Integrate AI For Personalized Experiences, Semantic Search, And Dynamic Content Generation, Bridging Traditional Web Development With Next-Generation Cognitive Computing.



Course Structure

- ➡ 5 Months Course
- ➡ 1 Months Internship
- ➡ 100% Placement Assistance

By the end of the course, you will learn :

- Core Web Technologies (HTML, CSS, Git)
- Modern Javascript (ES6+) & Typescript
- Frontend Development With React.Js (Redux & Router)
- Backend Development With Node.Js & Express.Js
- Database Management (Mongodb & Mongoose)
- API Security (JWT Token Authentication)
- AI Integration Using Langchain.Js & Third-Party LLM Apis
- Vector Embeddings & Semantic Search With Mongodb Atlas
- Version Control & Collaboration (Git, Github)

- Deployment & Hosting
- Career & Interview Preparation
- AI-Powered Capstone Projects

Syllabus

WEB FOUNDATIONS & MODERN JAVASCRIPT

1. HTML, CSS, Git, JavaScript (ES6+), and TypeScript
2. Bootstrap for responsive design and UI fundamentals
3. AI-Enhanced Concept: Introduction to AI-Powered UI/UX — understanding how AI can personalize interfaces, generate content, and adapt layouts based on user behavior.

FRONTEND DEVELOPMENT WITH REACT.JS

1. React Setup, JSX, Components (Functional & Class), State & Props
2. Component Lifecycle, Lists, Conditional Rendering, and Forms
3. Events, Routing with React Router, State Management with Redux
4. **AI-Enhanced Concepts:**
 - Building AI-driven Components (Chatbot UIs, Text-to-Image Prompts, Document Summarizers)
 - Consuming REST APIs & Streaming Responses (real-time text generation effects)
 - Designing UI/UX for AI interactions (loading states, user feedback, and latency handling)



BACKEND DEVELOPMENT WITH NODE.JS

1. Node.js Setup, Creating Servers & Apps
2. Node Package Manager (NPM), Event-Driven Programming, Event Loop
3. Buffers, Streams, File System, Global Objects, Utility Modules
4. **AI-Enhanced Concepts:**
 - Introduction to LangChain.js for AI orchestration (chaining LLMs, APIs, and databases)
 - Optional: Using Transformers.js for local AI inference (sentiment analysis, classification)



REST API DEVELOPMENT WITH EXPRESS.JS

1. Express.js Setup, Routing, Middleware, and HTTP Methods
2. Building APIs with MongoDB (Mongoose Integration)
3. Securing APIs using JWT Authentication
4. **AI-Enhanced Concepts:**
 - Integrating Third-Party AI APIs (OpenAI, Gemini, etc.)
 - Creating AI-Powered Endpoints (e.g., /api/summarize-text, /api/chat)
 - Implementing Server-Sent Events (SSE) for streaming LLM responses
 - Error handling, rate limiting, and content filtering for AI requests



DATABASE INTELLIGENCE WITH MONGODB

1. Database Setup, CRUD Operations (Insert, Update, Delete, Find)
2. Collections, Data Types, and Schema Design with Mongoose
3. Connecting MongoDB with Express for Data Persistence
4. **AI-Enhanced Concepts:**
 - Storing & Querying Vector Embeddings (text/image representations)
 - Semantic Search with Vector DB
 - Real-world AI use cases: Recommendations, Chat Memory, and Knowledge Retrieval



CAPSTONE PROJECT & CAREER DEVELOPMENT

1. Capstone Projects
2. Build and Deploy AI-Powered Full-Stack Applications
3. Resume Building and Interview Preparation
4. Technical Evaluation and Final Project Presentation



+91 8089000806



ociuzacademy@gmail.com
ociuzacademy.com

Campus

📍 3rd Floor
Buhari Tower, M.G Road,
Thrissur- 680004

Registered office

📍 LSpace, VIP Road, Near JLN
Metro Station & Stadium,
Kaloor, Kochi- 682017