KIDS & TEENS FREELANCING TRAINING INSTITUTE

Mern Stack Web Development Course Outline

Module 1: What is the MERN Stack?

- What does "MERN" stand for? (MongoDB, Express, React, Node.js)
- Simple explanation: building a full web app from front to back
- Real-life example: creating a digital store from the shelf (frontend) to the warehouse (backend)
- Why MERN is popular for modern web development
- How the four parts of MERN work together
- Fun comparison: MERN stack vs. building with just HTML and CSS
- Activity: label each part of a web app with its MERN tool

Module 2: React – Building the Frontend

- What is React and why it's used for creating user interfaces
- Real-life example: React is like LEGO for web pages
- Components, props, and state explained simply
- How to create a basic React app
- Fun activity: build a small React app that shows your favorite movies
- How React makes sites fast, dynamic, and responsive
- Using JSX to write HTML in JavaScript

Module 3: Node.js & Express – Powering the Backend

- What is Node.js and how it runs JavaScript on the server
- What is Express and why developers use it to create web servers
- Real-life example: a restaurant kitchen taking and delivering orders
- How to create simple routes with Express
- Activity: build a mini server that responds with "Hello, world!"

- How backend code connects to the frontend
- Fun analogy: Express as the waiter, Node as the kitchen

Module 4: MongoDB – Managing the Database

- What is MongoDB and why it's great for storing data
- Real-life example: like keeping notes in a digital filing cabinet
- How data is stored in documents (not tables)
- Basic database actions: Create, Read, Update, Delete (CRUD)
- Activity: create a simple MongoDB database with favorite books or snacks
- How MongoDB works with Node and Express
- Introduction to Mongoose (making MongoDB easier to use)

Module 5: Connecting Everything – Full Stack in Action

- How React (frontend) talks to Express & Node (backend)
- How the backend talks to MongoDB (database)
- Real-life example: customer (browser) → waiter (Express) → kitchen (Node) → storage (MongoDB)
- What is an API and how apps use it to exchange data
- Fun activity: build a tiny full-stack app (e.g., a task list)
- How full-stack projects flow from click to data storage
- Introduction to HTTP methods: GET, POST, PUT, DELETE

Module 6: Deploying MERN Apps – Going Live

- What it means to "deploy" a MERN stack app
- Tools for deployment: Vercel (frontend), Render or Railway (backend), MongoDB Atlas (database)
- How to connect your deployed frontend to your backend and database
- Real-life example: launching a shop online for everyone to visit
- Activity: deploy your MERN app and share the link
- Why hosting apps online is important for showing your work
- How to keep your site running 24/7 using cloud tools

Module 7: Debugging & Optimizing – Making it Better

- How to spot and fix bugs in a MERN stack app

- Real-life example: fixing a bike when the chain falls off
- Using tools like Chrome DevTools and Postman
- How to test APIs and frontend components
- Activity: simulate a bug and fix it step by step
- How to make your app faster and more efficient
- Why regular testing and fixes keep apps working well

Module 8: MERN Stack Projects & Careers

- Real-life apps built with the MERN stack (Instagram, UberEats clones, etc.)
- Fun mini project ideas: blog, to-do list, recipe book, mini game site
- What careers use MERN: full-stack dev, frontend/backend dev
- Skills to keep learning: APIs, authentication, advanced MongoDB
- Drawing activity: design your dream MERN app and its features
- How MERN stack is used in startups and tech companies
- MERN development = full control + fun creativity

Bonus Materials:

- Interactive quizzes and fun challenges
- Kid-safe dev tools: Replit, MongoDB Atlas, Vercel playgrounds
- Printable MERN Stack cheat sheet
- Group project ideas for real collaboration
- Official Certificate of Completion