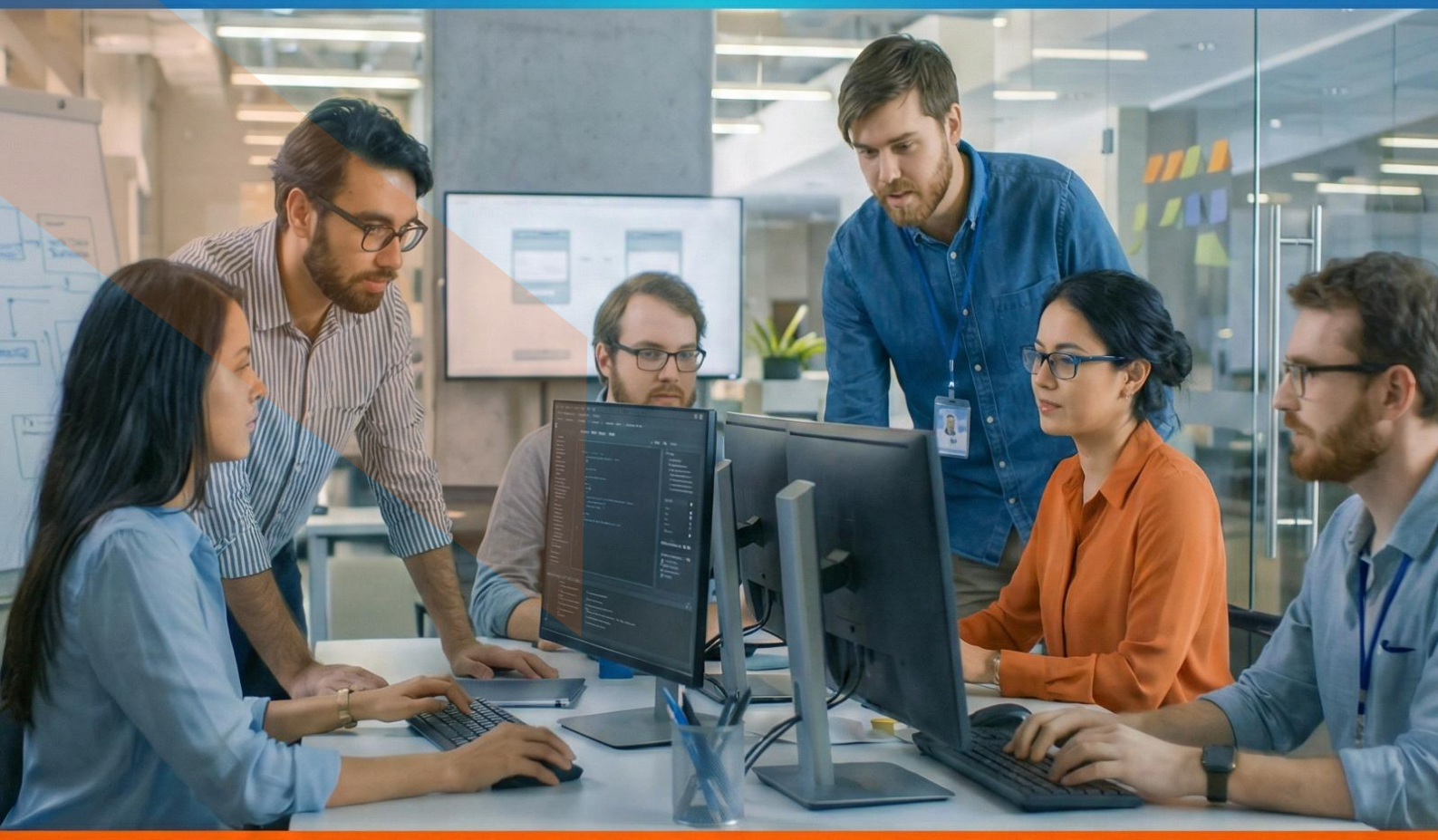
A Unique Approach to mould

NEXT-GEN AI PROFESSIONALS

MERN STACK



yugantaAi

COURSE INTRODUCTION

The MERN Stack is a cutting-edge and widely adopted web development framework composed of four core technologies: MongoDB, Express, React, and Node.js. MongoDB is a flexible NoSQL database designed for high performance and scalability. Express is a lightweight and powerful backend framework built on Node.js, enabling seamless server-side development. React is a dynamic front-end library used to create fast, interactive, and visually engaging user interfaces, while Node.js provides a robust JavaScript runtime for building scalable server-side applications together, these technologies form a complete full-stack ecosystem that empowers developers to build modern, high-performance, and production-ready web applications. This course offers a comprehensive, hands-on introduction to the MERN Stack, guiding learners through the entire process of designing, developing, and deploying full-stack applications from scratch. Students will explore the core features of each technology, learn how they integrate seamlessly, and apply their knowledge through real-world projects. By the end of the course, learners will be equipped with the practical skills and confidence needed to build professional-grade, scalable, and feature-rich web applications using the MERN Stack.

SYLLABUS

SECTION 1: HTML5 – PART 1

- What is Web Development?
- How Do Websites Work?
- Advantages of Learning Web Development
- History of Web Development
- Course and Projects Overview
- Project Lifecycle

SECTION 2: HTML5 – PART 2

- What is HTML?
- Structure of a Webpage
- HTML Tags
- Adding and Formatting Texts, Title, Paragraph and Body
- Lists – Ordered/Unordered
- Images
- Forms
- Map
- SVG
- HTML5 Form Validation

SECTION 3: HTML5 – PART 2 | CSS3 – PART 1

- Links
- Tables
- Iframes, Videos
- Anchor Tags
- HTML Divs
- CSS Introduction
- Inline v/s Internal v/s External Styling
- CSS Display

Project 1- To-do App – Front-End using HTML/CSS3

SECTION 4: CSS– PART 2 | ADVANCED CSS – PART 1

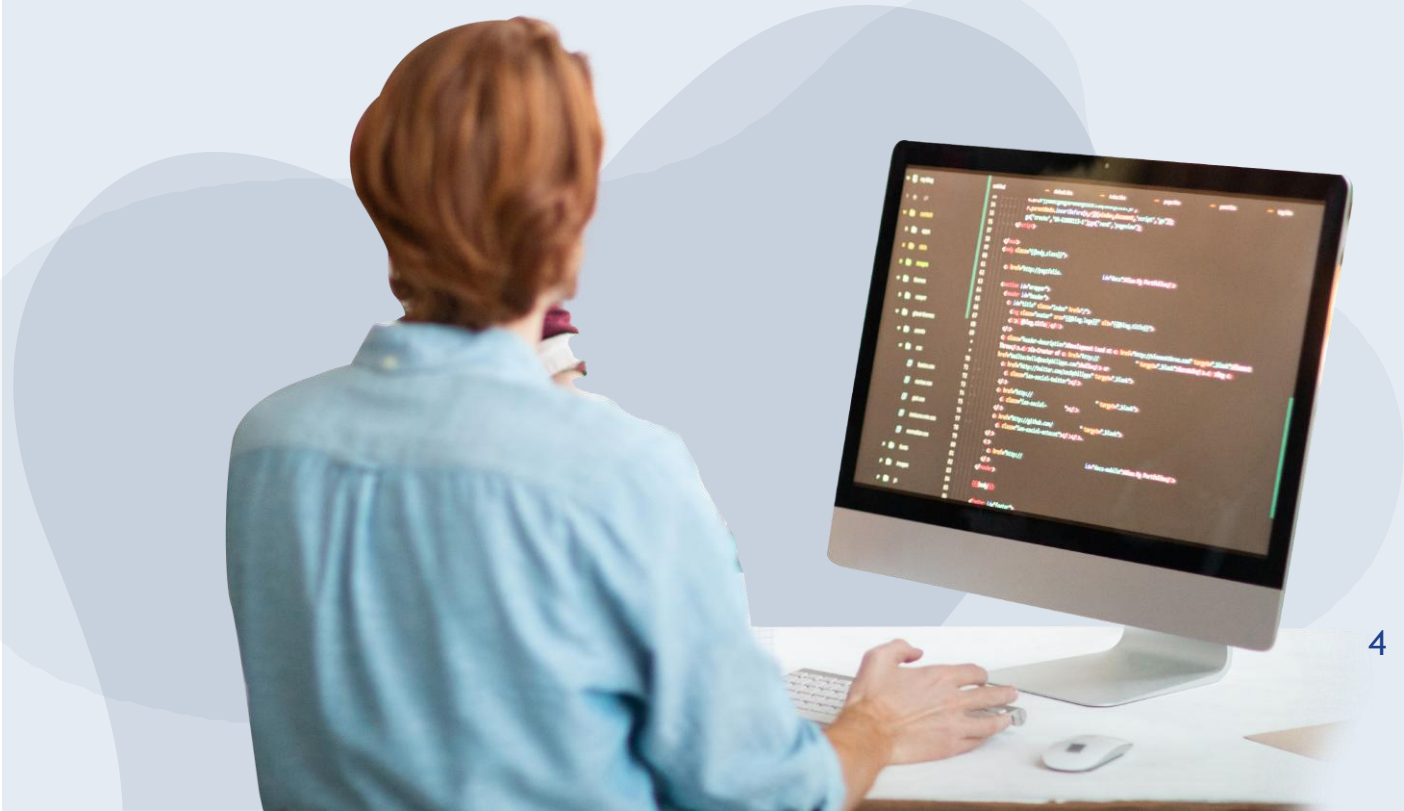
- CSS Backgrounds, Borders, Margins, Padding
- CSS Font Styling
- Stylings Lists
- Styling Tables, Forms
- Gradients
- Font Awesome
- Media Query

SECTION 5 ADVANCED CSS – PART 2

- Tool Tips
- Buttons
- Transitions, Transformation, Animations
- Box Sizing
- Flex
- Grid
- SASS
- Project 1- To-do App – Enhance Frontend using CSS

PROJECT BUILDING – 1

- Responsive Media Queries
- Discuss To-Do App
- Project 2 – Blog – Add Blog Front-End using HTML/CSS



SECTION 6: BOOTSTRAP – PART 1

- Bootstrap Containers
- Tables, Images, Colours
- Alerts, Buttons
- Spinners, Cards

SECTION 7: BOOTSTRAP – PART 2

- Pagination, Drop Down
- Carousel
- To-do App – Develop To-do App Frontend Using Bootstrap
- GitHub Overview

SECTION 8 : JAVASCRIPT – PART 1

- Introduction to JavaScript
- Variables, Scoping, Data Type
- Strings and Numbers
- Operators and Loops
- Functions
- Project 1– Add Functionalities to To-do App

SECTION 19: JAVASCRIPT – PART 2

- Understanding and Working with DOM
- Developer tools in Browsers
- Project 2 – Add Functionalities to Blog

SECTION 11: JAVASCRIPT – PART 4

- Prototypes
- Closures
- Local Storage
- Promises
- Project 3 – Dice Roller Game using Animation and JavaScript

SECTION 12: JAVASCRIPT – PART 5

- ES5 v/s Es6 v/s Es7
- Event Loop in JavaScript

NODE.JS and EXPRESS.JS

SECTION 1:: NODE.JS

- Introduction to Node.js
- Why Node.js?
- Features of Node.js
- Node.js - Installation & configuration
- Where to use Node.js ?
- Server-side JavaScript
- Asynchronous Events v/s Threads
- Performance

SECTION 4 : UTILITY MODULE

- OS module
- Path module
- Net Module
- DNS Module
- Domain Module

SECTION 5 : WEB MODULE

- What is a Web-server?
- Web Application Architecture
- Creating a Web-server Using Node
- Creating a Web Client Using Node

SECTION 6: EXPRESS.JS INTRODUCTION

- What is Framework?
- Express.js Overview
- Installing Express.js
- Request & Response
- Request Object
- Response Object
- HTTP Method with Node
- Serving Statics File
- Cookies Management
- REST with Node.js

SECTION 7: EXPRESS.JS

- Routing
- Configuration
- Views
- Middleware

SECTION 8: BUILDING AN EXPRESS APP

- Creating an Express app/project
- Organising/structuring the app
- Generating HTML views with Jade
- Navigating datasets
- Filtering Data
- Request variables and routes
- Posting Data
- Modifying Data Through PUT Requests
- Handling GET Requests Returning JSON
- Modifying HTTP Response Headers

SECTION 9: NODE WITH REST API

- Introduction to REST API
- REST Architecture
- HTTP Methods
- HTTP Response
- Creating REST
- Testing REST
- POSTMAN

REACT JS COURSE CONTENT

SECTION 1

- React JS Introduction
- Advantages of React JS
- Work Flow of React JS
- Scope of React JS

SECTION 2: OVERVIEW OF JSX

- Introduction of Virtual DOM.
- Difference between JS and JSX.
- React Components Overview
- Containers and Components
- What are Child Components? What are Namespace components?
- What are the JavaScript Expressions Available in JSX?

SECTION 3: REACT JS ENVIRONMENT SETUPS

- Node Setup
- How to Use NPM?
- How to Create Package.json and What is Its Purpose?
- ES6 - Introduction and Features
- Webpack Overview
- Best IDE for React JS and How to Write Optimized Code in React JS?
- React JS Browser Plugins Overview.

REAL-TIME PRACTICALS – 1

SECTION 4: A REAL-TIME APPLICATION BY USING REACT JS

- Create a React Component with JSX Template.
- How to Create Nested Components?
- What is React JS render?
- React Props Overview.
- Introduction of Props Validation with Data Types.
- Flow of States, Initialize States and Update States

REAL-TIME PRACTICALS – 2

- Create a Small React Module
- Use All the States in the created Application

SECTION 5: REACT JS FORMS AND UI

- Lists of Form components.
- Setup Controlled and Uncontrolled form compoents.
- Control Input elements.
- How to set default values on all formats of Input elements.
- React JS Form validations.
- How to write Styles?
- Animations overview

REAL-TIME PRACTICALS – 3

- Create a React Form
- Client-Side form validation
- Applying form components
- Submit and Rest the form

SECTION 6: REACT JS COMPONENT LIFE CYCLES OVERVIEW

- Initial Render
- Props Change
- Stage Change
- Component WillMount
- Component DidMount
- Component Unmount

SECTION 7: ROUTING IN REACT JS AND OTHER JS CONCEPTS

- Single Page Application Overview.
- How to configure React Router?
- History of Router
- How to Handle Conditional Statement in JSX?
- IIFE in JSX for Complex Logic Overview.

REAL-TIME PRACTICALS – 5

- Create a Single Page Applications
- Applying Routing
- Dynamically render the components based on the URL

SECTION 8: EVENT HANDLING IN JSX

- onBlur, onKeyUp, onChange and Other Useful Primary Events in React JS.
- How to share events between the components?

SECTION 9 : HOW TO WRITE STYLES IN REACT JS?

- CSS and Inline Styles in React JS overview.
- Introduction to Styled Components

REAL-TIME PRACTICALS – 6

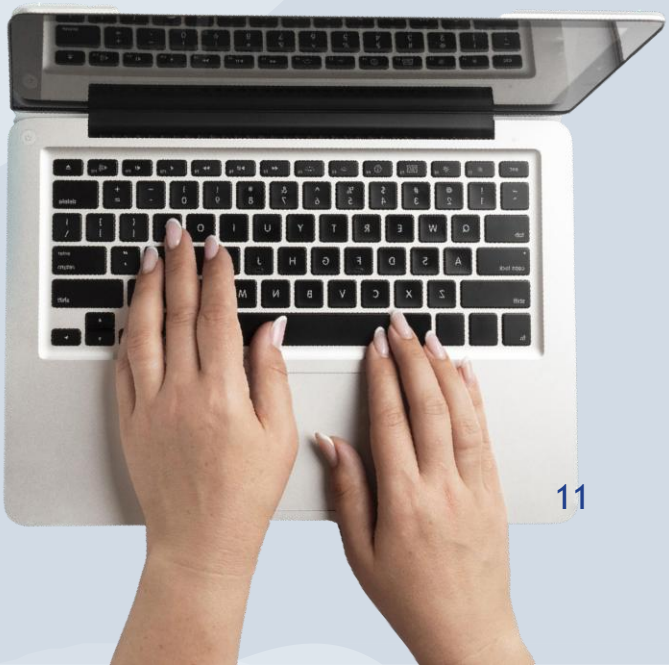
- Styling the application using styled component
- Hoe to use Animations in the Application

SECTION 10: REACT ROUTER WITH NAVIGATION

- How to Load the Router Library?
- Configure the React Router?
- How to Pass and Receive Parameters?
- Integration of React-cookie Overview.

SECTION 11: UNIT TESTING OVERVIEW

- What are the Necessary Tools Required for Unit Testing?
- React Unit Testing Overview
- Introduction to JEST.
- How to Test React Component?
- How to Test React Router?



MongoDB

SECTION 1: NOSQL DB

- Introduction to NOSQL DB
- Overview of DB
- Advantages of NOSQL DB
- Types of NOSQL DB

SECTION 2: MongoDB

- Introduction to MongoDB
- Installation and Configuration of MongoDB
- Start and Stop MongoDB Connection with JavaScript and Node.js
- Static and Dynamic Schemas
- Data Modelling
- Create Database
- Drop Database

SECTION 3: MongoDB COLLECTION

- Introduction to Collection
- Collection Vs Tables
- Create Collection
- Drop Collection
- Operation on MongoDB

SECTION 4: MongoDB Document

- Introduction to Document
- Create Document
- Insert Document
- Update Document
- Delete Document

SECTION 5: MongoDB- OPERATION

- MongoDB - Limit Records
- MongoDB - Sort Records
- MongoDB - Indexing
- MongoDB - Create Backup

SECTION 6: JSON

- Introduction to JSON
- Uses of JSON
- JSON Datatype
- JSON Object
- JSON Schemas

SECTION 7: MongoDB with JavaScript

- Creating and Dropping Collection by JavaScript application
- Creating and Deleting Document by JavaScript Application
- Insert, Update, Delete Operation with JavaScript

SECTION 8: REST API

- Introduction to REST API
- REST Architecture
- HTTP Methods
- HTTP Response
- Creating REST
- Testing REST
- POSTMAN

SECTION 8: REST API

- Introduction to REST API
- REST Architecture
- HTTP Methods
- HTTP Response
- Creating REST
- POSTMAN
- Creating an Application Based on REST API with JavaScript and MongoDB

Git and GitHub DEPLOYMENT

- Git Setup: Your Name , Email
- Create a New Local Git Repository (Initialize Repository)
- Stage : Commit Files
- GitHub: Push to a Remote Repository
- GitHub: Pull from a Remote Repository
- GitHub: Clone (Download) a Remote Repository
- How to Handle Merge Conflicts
- View a List of Commits & Undo Changes
- Branches: Create, Switch, Push, Merge, Delete

CONCLUSION

- PROJECT
- HOSTING