

WEB DEVELOPMENT WITH MERN STACK

COURSE – 9 MONTHS

HTML PROGRAMMING COURSE

MODULE 1: BASIC HTML STRUCTURE TAGS

- ✓ HTML document structure (<!DOCTYPE html>, <html>, <head>, <body>)
- ✓ Head elements:
 - <title>
 - <meta> tags
 - <link> to external files
- ✓ Body elements:
 - Headings (<h1>–<h6>)
 - Paragraphs (<p>)
 - Line breaks (
) and horizontal rules (<hr>)

MODULE 2: TEXT FORMATTING S LISTS

- ✓ Bold, italic, underline (, <i>, <u>, ,)
- ✓ Superscript and subscript (<sup>, <sub>)
- ✓ Lists:
 - Ordered lists ()
 - Unordered lists ()
 - Definition lists (<dl>)

MODULE 3: LINKS S NAVIGATION

- ✓ Creating hyperlinks (<a>)
- ✓ Internal vs external links
- ✓ Email and phone links
- ✓ Opening links in new tabs (target="_blank")
- ✓ Using anchors for page navigation

MODULE 4: IMAGES S MEDIA

- ✓ Inserting images ()
- ✓ Image attributes (src, alt, width, height)
- ✓ Adding videos (<video>)
- ✓ Adding audio (<audio>)
- ✓ Embedding external content (YouTube, Google Maps with <iframe>)

MODULE 5: TABLES IN HTML

- ✓ Creating a table (<table>)
- ✓ Table headers (<th>), rows (<tr>), and cells (<td>)
- ✓ Merging cells (colspan, rowspan)
- ✓ Adding borders and captions
- ✓ Best practices for table accessibility

MODULE 6: FORMS IN HTML

- ✓ Form basics (<form>, action, method)
- ✓ Input fields (<input>, <textarea>)
- ✓ Drop-down lists (<select>, <option>)
- ✓ Radio buttons and checkboxes
- ✓ Submit and reset buttons
- ✓ HTML5 form attributes (required, placeholder, pattern)

MODULE 7: SEMANTIC HTML

- ✓ Understanding semantic tags
- ✓ <header>, <footer>, <nav>, <main>, <article>, <section>, <aside>
- ✓ Benefits for SEO and accessibility

MODULE 8: HTML5 FEATURES

- ✓ New input types (email, date, color, number)
- ✓ <figure> and <figcaption>
- ✓ <progress> and <meter>
- ✓ <details> and <summary> for collapsible content

- ✓ <canvas> introduction

Module 9: Project Work s Practice

- ✓ Mini-project ideas:
 - Personal portfolio webpage
 - Product catalog page
 - Resume/CV in HTML
 - Event registration form
- ✓ Debugging HTML code



CSS PROGRAMMING

MODULE 1: INTRODUCTION TO CSS

- ✓ What is CSS? Purpose and importance in web design
- ✓ Difference between HTML and CSS
- ✓ CSS syntax (selectors, properties, values)
- ✓ Types of CSS:
- ✓ Inline CSS
- ✓ Internal CSS
- ✓ External CSS
- ✓ Linking CSS to HTML (<style>, <link>)

MODULE 2: CSS SELECTORS S COLORS

- ✓ Basic selectors:
- ✓ Element, ID, and class selectors
- ✓ Grouping and universal selectors
- ✓ Descendant, child, and sibling selectors
- ✓ Attribute selectors
- ✓ CSS colors:
- ✓ Named colors, HEX, RGB, RGBA, HSL, HSLA

MODULE 3: TEXT S FONT STYLING

- ✓ Changing font family, size, and style
- ✓ Font weight and letter spacing
- ✓ Text alignment and decoration
- ✓ Line height and word spacing
- ✓ Google Fonts integration

MODULE 4: BOX MODEL S BORDERS

- ✓ Understanding the CSS box model (content, padding, border, margin)
- ✓ Setting width and height
- ✓ Borders: style, width, and color
- ✓ Border radius for rounded corners
- ✓ Outline vs border

MODULE 5: BACKGROUNDS

- ✓ Background color
- ✓ Background images (background-image)
- ✓ Background repeat, size, position
- ✓ Gradient backgrounds (linear and radial)

MODULE 6: CSS LAYOUT BASICS

- ✓ Display property (block, inline, inline-block, none)
- ✓ Positioning (static, relative, absolute, fixed, sticky)
- ✓ Z-index for layering elements
- ✓ Float and clear
- ✓ Overflow control

MODULE 7: FLEXBOX

- ✓ Introduction to flexbox
- ✓ Main axis and cross axis
- ✓ Flex container properties:
 - display: flex
 - flex-direction, justify-content, align-items, flex-wrap
- ✓ Flex item properties:
 - order, flex-grow, flex-shrink, flex-basis

MODULE 8: CSS GRID

- ✓ Introduction to CSS Grid layout
- ✓ Creating grid containers (display: grid)
- ✓ Defining rows and columns
- ✓ Grid gap and alignment
- ✓ Spanning rows and columns

MODULE 9: STYLING LISTS, LINKS S TABLES

- ✓ Customizing bullet points and numbering
- ✓ Styling links (:link, :hover, :active, :visited)
- ✓ Table styling (borders, spacing, striping rows)

MODULE 10: CSS TRANSITIONS, TRANSFORMS ANIMATIONS

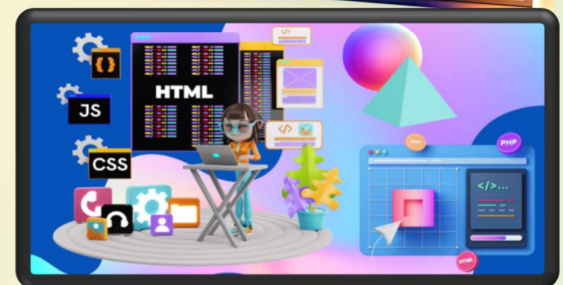
- ✓ CSS transitions (duration, delay, timing function)
- ✓ CSS transforms (rotate, scale, translate, skew)
- ✓ Keyframe animations (@keyframes)
- ✓ Animation properties (animation-name, animation-duration, animation-iteration-count)

MODULE 11: RESPONSIVE DESIGN

- ✓ Introduction to responsive design
- ✓ Viewport meta tag
- ✓ Media queries (@media)
- ✓ Flexible images and text
- ✓ Mobile-first design approach

MODULE 12: PROJECT WORK S PRACTICE

- ✓ Mini-project ideas:
 - Responsive personal portfolio website
 - Animated landing page
 - Product card UI design
 - Navigation bar with hover effects
- ✓ Debugging CSS issues



JAVASCRIPT PROGRAMMING

MODULE 1: INTRODUCTION TO JAVASCRIPT

- ✓ What is JavaScript? History & role in web development
- ✓ Difference between JavaScript, HTML, and CSS
- ✓ Setting up JavaScript:
- ✓ Inline, internal, and external scripts
- ✓ Using the browser console
- ✓ Your first script: `console.log("Hello World")`

MODULE 2: JAVASCRIPT BASICS

- ✓ Variables:
 - `var`, `let`, `const`
- ✓ Data types:
 - String, Number, Boolean, Undefined, Null, Symbol, BigInt
- ✓ Comments in JavaScript
- ✓ Operators:
 - Arithmetic, Assignment, Comparison, Logical, Ternary

MODULE 3: STRINGS, NUMBERS, AND TYPE CONVERSION

- ✓ String creation (single, double, backticks)
- ✓ String methods (`length`, `toUpperCase()`, `slice()`, `replace()`)
- ✓ Template literals & interpolation
- ✓ Number operations and methods
- ✓ Type conversion (`Number()`, `String()`, `parseInt()`)

MODULE 4: CONDITIONAL STATEMENTS

- ✓ `if`, `else if`, `else`
- ✓ `switch` statement
- ✓ Truthy and falsy values
- ✓ Short-circuit evaluation with `&&` and `||`

MODULE 5: LOOPS & ITERATION

- ✓ `for` loop
- ✓ `while` and `do...while` loops
- ✓ Loop control: `break` and `continue`
- ✓ `for...in` and `for...of`

MODULE 6: FUNCTIONS

- ✓ Function declaration & invocation
- ✓ Parameters and return values
- ✓ Function expressions
- ✓ Arrow functions
- ✓ Default parameters
- ✓ Scope: local vs global variables

MODULE 7: ARRAYS

- ✓ Creating arrays
- ✓ Array methods: `push()`, `pop()`, `shift()`, `unshift()`
- ✓ Iterating over arrays (`forEach()`, `map()`, `filter()`, `reduce()`)
- ✓ Searching in arrays (`indexOf()`, `includes()`)

BEST COURSES
JavaScript



```

// Strict Equality (===)
console.log(5 === 5);           // true
console.log(5 === '5');        // false (different types)
console.log(true === true);    // true
console.log(true === 1);       // false (different types)

// Abstract Equality (==)
console.log(5 == 5);           // true
console.log(5 == '5');        // true (coerced to the same value)
console.log(true == true);     // true
console.log(true == 1);       // true (coerced to the same value)
    
```



JavaScript

MERN STACK

MODULE 1: INTRODUCTION TO MERN STACK

- ✓ What is MERN? Overview of MongoDB, Express, React, Node
- ✓ How MERN differs from other stacks
- ✓ Setting up the development environment
- ✓ Installing Node.js, npm, MongoDB, and VS Code
- ✓ Module 2: JavaScript Refresher
- ✓ ES6+ syntax review
- ✓ Variables, functions, arrays, and objects
- ✓ Arrow functions, template literals, destructuring
- ✓ Async programming: callbacks, promises, async/await

MODULE 3: NODE.JS FUNDAMENTALS

- ✓ What is Node.js & its architecture
- ✓ npm & package.json
- ✓ Core modules (fs, path, http)
- ✓ Creating a basic server
- ✓ Handling requests & responses

MODULE 4: EXPRESS.JS BASICS

- ✓ Introduction to Express.js
- ✓ Creating routes (GET, POST, PUT, DELETE)
- ✓ Middleware in Express
- ✓ Serving static files
- ✓ Handling errors

Module 5: MongoDB Basics

- ✓ Introduction to NoSQL databases
- ✓ Installing and running MongoDB locally / using Atlas
- ✓ Collections, documents, and CRUD operations
- ✓ MongoDB Compass GUI
- ✓ MongoDB queries & operators

Module 6: Mongoose ODM

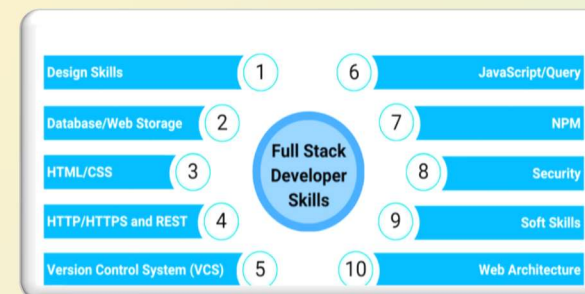
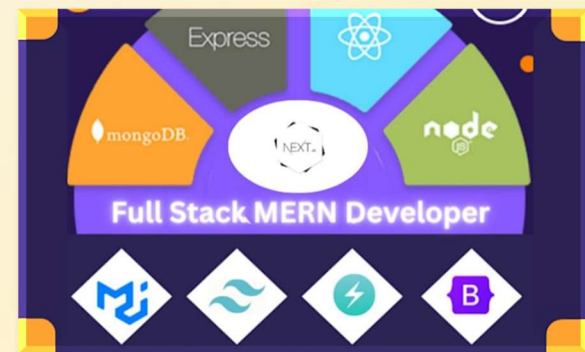
- ✓ Introduction to Mongoose
- ✓ Defining schemas & models
- ✓ Data validation
- ✓ CRUD with Mongoose
- ✓ Relationship & population

Module 7: RESTful APIs

- ✓ What is a REST API?
- ✓ Creating APIs with Express & MongoDB
- ✓ Postman for API testing
- ✓ Handling query parameters & body data
- ✓ Pagination & filtering

Module 8: Authentication & Security

- ✓ User registration & login
- ✓ Password hashing with bcrypt
- ✓ JSON Web Tokens (JWT)



- ✓ Protecting routes
- ✓ Environment variables with dotenv

Module 9: React.js Fundamentals

- ✓ Introduction to React C SPA concepts
- ✓ JSX C components
- ✓ Props and state
- ✓ Event handling
- ✓ Conditional rendering
- ✓ Lists C keys
- ✓ Module 10: React Hooks s State Management
- ✓ useState, useEffect, useRef
- ✓ Controlled vs uncontrolled components
- ✓ Context API for global state
- ✓ Introduction to Redux (optional advanced topic)
- ✓ Module 11: Connecting React with Backend
- ✓ Fetching data from API using fetch/axios
- ✓ Handling async requests in React
- ✓ POST, PUT, DELETE requests from frontend
- ✓ CORS handling
- ✓ Module 12: File Uploads s Image Handling
- ✓ Multer middleware for uploads
- ✓ Serving uploaded files from server
- ✓ Image preview in React
- ✓ Module 13: Deployment
- ✓ Preparing frontend C backend for production
- ✓ Deploying backend to Render / Railway / Heroku
- ✓ Deploying frontend to Vercel / Netlify
- ✓ Connecting deployed frontend with backend

Benefits of hiring MERN stack developer



How can you hire the right MERN stack developer?

1. Never overlook the project's requirements
2. Ability to build an application from scratch
3. In-depth knowledge
4. Scalable solutions

