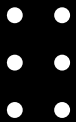


# Web Development

**Course Outline**

**2024**



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### Course Objective:

- Enable participants to develop a complete web application from the scratch that includes Front-end, Backend and Data-exchange technologies.
- Build strong foundations (ex: OOPS) in entry level engineers / working professionals thereby making them job ready as per latest industry requirements. Enable them to learn new technologies by applying foundation paradigms.
- By the end of the program participants will be become an industry-ready engineer who can be readily deployed in a project.

### Duration:

The duration of this bootcamp is **2 months**.

### Delivery Method:

Live virtual classes and intervention session (Assignment / projects, Live doubt clearing and evaluation.)

### Learning Outcomes:

By the end of this Course, students will be able to

- Understand the fundamentals of web development, including HTML, CSS, and JavaScript.
- Develop front-end web applications using HTML, CSS, and JavaScript.
- Develop back-end web applications using a programming language such as PHP, Python, Flask, Django Java etc.
- Deploy web applications to a production environment.
- Work effectively as part of a team to develop web applications.
- Communicate effectively with both technical and non-technical audiences about web development projects.
- Identify and solve problems in a timely and efficient manner.
- Work as Freelancer, Entrepreneur etc.

### Front-end (HTML, CSS3, JAVASCRIPT)

#### HTML:

- Introduction HTML
- HTML Basics
- HTML Elements
- HTML5 Semantic
- HTML Attributes
- HTML Headings
- HTML Paragraph
- HTML Styles
- HTML Formatting
- HTML Quotations
- HTML Computer Code
- HTML Comments & Colors
- HTML CSS, Links and Images
- HTML Lists
- HTML Blocks
- HTML Classes
- HTML Layout
- HTML Responsive
- HTML iframes
- HTML JavaScript
- HTML Head
- HTML Entities and URI Code
- HTML Symbols and XHTML
- HTML Charset and Forms

#### CSS3:

- Introduction CSS3
- CSS3 Syntax
- CSS3 How To
- CSS3 Colors
- CSS3 Backgrounds
- CSS3 Borders
- CSS Padding
- CSS Height/Width
- CSS3 Gradients
- CSS3 Shadows
- CSS3 Text
- CSS3 Fonts
- CSS3 2D Transforms
- CSS3 3D Transforms
- CSS3 Links
- CSS3 Lists
- CSS3 Tables
- CSS3 Box Model
- CSS3 Outline
- CSS3 Display
- CSS3 Max-width
- CSS3 Position
- CSS3 Float
- CSS3 Inline-block
- CSS3 Align
- CSS3 Combinators
- CSS3 Navigation Bar
- CSS3 Dropdowns
- CSS3 Tooltips
- CSS3 Images
- CSS3 Attr Selectors
- CSS3 Forms
- CSS3 Counters
- CSS3 Animations
- CSS3 Buttons
- CSS3 Pagination
- CSS3 Multiple Columns
- CSS3 User Interface
- CSS3 Box Sizing
- CSS3 Filters
- CSS3 Media Queries
- CSS3 Responsive

## Bootstrap:

- Introduction to Bootstrap
- Bootstrap Basics
- Bootstrap Grids
- Bootstrap Themes
- Bootstrap Layout
- Bootstrap Columns
- Bootstrap Typography
- Bootstrap Images
- Bootstrap Tables
- Bootstrap Figure
- Bootstrap Form
- Bootstrap Components
- Bootstrap Navbar
- Bootstrap Nav & tabs
- Bootstrap slides
- Bootstrap cards
- Bootstrap Buttons
- Bootstrap Utilities

## JavaScript:

- History of JavaScript
- Advantages
- Limitations
- Script element
- Creating your first JavaScript program
- Coding convention
- Setting up development environment (Vs Code)

## Types and Statements

- Keywords in JavaScript
- Overview of Data types
- Primitive Data types
- Non-primitive Data types
- Conditional statements
- I/O in JavaScript
- Loops

## Operators

- Introduction to operators
- Operator precedence and associativity
- Deep dive into operators
- Arithmetic
- Comparison
- Ternary
- Logical
- Language
- Bitwise

## Functions - Level I

- Introduction to functions
- Function definition
- Passing values
- Returning values
- Robust parameter handling
- Local and global variables

- Functions as objects

## Functions- Level II

- Function invocation patterns
- Recursion functions
- Generator functions
- Arrow functions

## Arrays and Strings

- Introduction to Arrays
- Array declaration
- Array access methods

## Regular Expressions

- Introduction to RegExp
- Regular expression usage
- Modifiers
- RegExp patterns

## Objects in JavaScript

- Introduction to objects
- Type of objects in JavaScript
- Creating objects
- Object methods

## Event handling

- JavaScript events
- Event handler
- Event flow

## Document Object Model (DOM)

- Introduction to DOM
- Types of DOM
- DOM standards and methods
- Manipulating documents using DOM

## Course Outline

- Function constructor
- Variadic functions
- JavaScript scopes
- Function closures
- Multi-dimensional arrays
- String properties
- String access methods
- RegExp methods
- String methods for RegExp
- Type conversion in JavaScript
- Constructor function
- Prototype in JavaScript
- Inheritance using prototype chain
- Event bubbling and capturing
- Event listeners
- Event types
- Handling images
- Table manipulation
- Animation
- Node and Node-list handling

### Browser Object Model (BOM)

- Introduction to BOM
- DOM vs BOM differences
- Window object and methods
- BOM navigator
- BOM history
- BOM location
- BOM timer
- Introduction to Cookies
- Session and persistent cookies

### Form Handling

- Introduction to forms
- Form processing
- Forms object
- Accessing data from forms
- Form validation
- Additional features in forms
- Validation APIs

### Debugging Techniques

- JavaScript Errors
- Error handling mechanisms
- Introduction to Google Chrome debugger
- Deep dive into debugger window
- Introduction to Breakpoints
- Changing variable values in runtime
- Avoiding Mistake

### jQuery:

- What Is jQuery?
- jQuery Selectors
- jQuery Introduction
- jQuery Syntax
- jQuery Events
- jQuery Effects
- jQuery HTML
- jQuery AJAX

### PHP:

- Overview of PHP
- Variables
- Constants
- Output Statements
- Operators
- Decision Making
- Loop Types
- Functions
- Arrays
- PHP Forms
- Object Oriented Programming
- Class
- Object
- Member Variable
- Member function
- Inheritance
- Parent class
- Child Class

- Polymorphism
- Overloading

## Course Outline

- Data Abstraction
- Destructors

## SQL & MySQL

- What is SQL & MySQL and its Versions?
- MySQL CLI: MySQL /GUI: phpMyAdmin
- Administration & Query Browser
- Creating Databases and Tables
- Using keys
- Table Types in MySQL
- Data Types: Varchar, Int, Char, Date and Time
- Deleting databases and tables
- Inserting, Retrieving, Updating and Deleting data
- MySQL User Accounts, Privileges and Access Control
- MySQL documentation

