COURSE TITLE	**JAVASCRIPT**
COURSE CODE	**05CA0306**
COURSE CREDITS	**4**

Objective:

1. Understand the core concepts of JavaScript, including objects, data types, and event handling
2. Demonstrate the ability to handle browser events and manipulate the Document Object Model (DOM) to enhance user interaction
3. Develop dynamic and visually engaging web interfaces using scripting-based animations.

Course Outcomes: After completion of this course, student will be able to:

1. Explain the concepts and significance of client-side scripting languages, particularly JavaScript
2. Apply conditional and looping constructs to control program flow in JavaScript
3. Demonstrate the handling of events, cookies, and prompts to manage user interactions in web applications.
4. Manipulate the Document Object Model (DOM) to dynamically update and control web content.

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Introduction to JavaScript** JavaScript Overview, JavaScript Syntax, Embedding Script in HTML File, Variable in JS, Local Variables & Global Variable, Comments in Java Script, Datatypes of JavaScript, Operators in Java Script, Function, Object, Array in Java Script, External Java Script	10
2	**Control Statements & Functions in JavaScript** Control statements with decision-making and branching - If, If-else, nesting of if, and switch, Decision making and looping - While loop, for loop, Nested Loops, Functions in Python - Built-in functions, Date & Time Functions, and Math Functions, User-defined functions and their types, Recursion of functions	10

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Contents : Unit	Topics	Contact Hours
3	**Prompts, Events, and Cookies in JavaScript** Alert Box, Confirmation Box, and Prompt Box, Timing events, window time out, Interval, start, stop, go back, go forward events, What are Cookies, and How do Create, Change, and Delete them, use them with functions	15
4	**DOM in JavaScript** Understanding of DOM, what are the methods of DOM, HTML – JavaScript Elements, finding elements by id, name, and class, Change HTML content, the value of attributes, and form validations, Using DOM manipulate HTML styles – CSS, Animate the web page, DOM events, and event listeners, DOM Navigation, navigating nodes, Add, Remove, Change Nodes	10
Total Hours		**45**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Unit 1** Write a JavaScript program to embed a script in an HTML file and display an alert message, Create a JavaScript program to demonstrate global and local variables, Implement different data types and demonstrate type conversion in JavaScript, Write a JavaScript program using arithmetic, relational, logical, and bitwise operators, Develop an external JavaScript file and link it to an HTML page	15
2	**Unit 2** Write a JavaScript program demonstrating if, if-else, nested if, and switch statements, Implement a program using while loop, for loop, and nested loops for number patterns, Create a JavaScript function using built-in Date & Math functions, Develop a program using user-defined functions with parameters and return values, Write a JavaScript program to implement recursion (e.g., factorial calculation)	15
3	**Unit 3** Write a JavaScript program to display Alert, Confirmation, and Prompt Boxes, Implement a setTimeout() and setInterval() function to change the background color every 3 seconds, Create a program that navigates browser history using goBack() and goForward(), Develop a JavaScript program to create, read, update, and delete cookies, Write a program that stores user preferences using cookies and retrieves them on page reload	15

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	**Unit 4** Write a JavaScript program to find an HTML element by ID, name, and class name, Implement JavaScript to change the content and attributes of an HTML element dynamically, Create a form validation script to check empty fields, valid email, and password strength, Develop a program to manipulate CSS properties dynamically (e.g., change text color on click), Implement adding, removing, and changing HTML elements using DOM methods	15
Total Hours		**60**

Textbook :

1 JavaScript: The Definitive Guide, David Flanagan, O'Reilly Media, 2020

2 Eloquent JavaScript, Marijn Haverbeke, No Starch Press, 2018

References:

1 You Don’t Know JS: Scope & Closures, You Don’t Know JS: Scope & Closures, Kyle Simpson, O'Reilly Media, 2014

2 JavaScript: The Good Parts, JavaScript: The Good Parts, Douglas Crockford, O'Reilly Media, 2008

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1 Board Work

2 PPT

3 Demo

Supplementary Resources:

1 https://www.w3schools.com/js/

2 https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide

3 https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference

4 https://javascript.info

5 https://tc39.es/ecma262/

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Supplementary Resources:

6 https://developers.google.com/web/fundamentals
7 https://www.freecodecamp.org/learn/javascript-algorithms-and-data-structures/
8 https://www.codecademy.com/learn/introduction-to-javascript
9 https://learn.microsoft.com/en-us/training/paths/javascript-first-steps/
10 https://nodejs.org/en/docs

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