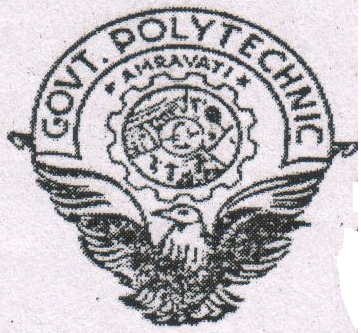
**GOVERNMENT POLYTECHNIC, AMRAVATI**



**(AUTONOMOUS INSTITUTE OF GOVERNMENT OF MAHARASHTRA)**

### **CURRICULUM DEVELOPMENT CELL**

**----------------------------------------------------------------------------------------------------------------**

**PROGRAMME TITLE: DIPLOMA IN COMPUTER ENGINEERING /**

**INFORMATION TECHNOLOGY**

# **COURSE CODE: FC5471**

# **COURSE TITLE: CLIENT SIDE SCRIPTING USING JAVA SCRIPT**

# **TEACHING SCHEME**:

| LEVEL OF  COURSE | PRERE-  QUISITE | WEEKLY  CONTACT HRS. | | | TOTAL  CREDITS | TOTAL WEEKS | TOTAL CONTACT  HOURS | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| L | T | P | L | T | P |
| V | FC3408 | 03 | - | 02 | 05 | 16 | 48 | - | 32 |

**EXAMINATION SCHEME:**

| THEORY(Marks) | | | | | PRACTICAL(Marks) | | TOTAL  (Marks) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ESE PAPER  HOURS | ESE | | PA | TOTAL | ESE | PA |
| 3Hrs | MAX. | 70 | 30\* | 100 | 25# | 25^ | 150 |
| MIN. | 28 | --- | 40 | 10 | 10 |  |

@: Internal Assessment #: External Assessment: Practical Based

(\*) Under the Theory PA, Out Of 30 Marks, 20 Marks is the Average of Two Tests and 10 Marks are for Micro project-

(^) Under practical PA Continuous Assessment of Practical Work is to be done by Course Teacher as per CDC norms.

For the courses having only practical examination, PA has two parts (i) Continuous Assessment of Practical work - 60% and (ii) microproject-40%.

1. **RATIONALE**:

JavaScript is limited featured client side programming language. JavaScript runs at the client end through the user’s browser without sending massages back and forth to the server. It is widely used by the web developers to do things such as build dynamic web pages, respond to event, create interactive forms, validate data that the visitor enters into a form, control the browsers etc. This course helps student to create highly interactive web application using these features.

**2. COURSE OUTCOMES (COs)**

At the end of this course, student will be able to: -

1. Create interactive web pages using program flow control structure.
2. Implement Arrays and functions in JavaScript.
3. Create event based web forms using JavaScript.
4. Use JavaScript for handling cookies.
5. Create interactive web page using regular expression for validation.
6. Create menus and navigations in web pages.
7. **DETAILED CONTENTS: THEORY**

| **Unit** | Unit Outcomes (UOs) (In cognitive domain) | **Topic and Sub-topics** | **CO No.** | **Hr** | **Marks** |
| --- | --- | --- | --- | --- | --- |
| **Unit 1**  **Basics of JavaScript Programming** | 1. Create object to solve the given problem. 2. Develop JavaScript to implement the switch-case statement for the given problem. 3. Develop JavaScript to implement loop for solving the given iterative problem. 4. Display properties of the given object using getters and setters. 5. Develop program using basic features of JavaScript to solve the given Problem. | 1. Features of JavaScript. 2. Object Name, Property, Method, Dot Syntax, main event. 3. Values and Variable. 4. Operators and Expression- Primary Expression, Object and Arrays initializers, function definition expression, property access expression, and invocation expressions. 5. if Statement, if...else, if...else if, Nested if Statement. 6. switch...case Statement 7. Loop Statement-for Loop, for in Loop, while Loop, do...while Loop, continue Statement. 8. Querying and setting properties and deleting properties, property getters and setters. | **1** | **10** | **12** |
| **Unit 2**  **Arrays, Function and String** | 1. Create arrays to solve given problem. 2. Perform the specified string manipulation operation on the given Strings. 3. Develop JavaScript to implement the given function. 4. Develop JavaScript to convert the given character to Unicode and Vice –Versa. | 1. Arrays - Declaring an Array, Initializing an Array, Defining Array Elements, Looping the Array, Adding an Array Element, Sorting Array Elements, Combining Array Elements into a String, Changing Elements of the Array, Object as Associative Arrays. 2. Functions **-** Defining a Function, Writing a Function, Adding arguments, Scope of Variables and Arguments. 3. Calling a Function - Calling a Function with or without an Argument, Calling a Function from HTML, Functions Calling Another Function, Returning Values from a Function. 4. **Strings -** Manipulate a String, Joining Strings, Retrieving a character from given position, position of character in given string ,Dividing Text, Copying a Substring, Converting String to Numbers and Numbers to Strings, Changing the Case of the String, Strings and Unicode. | **2** | **10** | **14** |
| **Unit 3**  **Form and Event Handling** | 1. Write a JavaScript to design a form to accept input values for the given problem 2. Use JavaScript to implement form events to solve the given problem. 3. Develop JavaScript to dynamically assign specified attribute values to the given form control. 4. Use the given intrinsic function with specified parameters. | 1. Building Blocks of a Form, Properties and methods of form, button, text, text area, check box, radio button, select element. 2. Form Events- mouse event, key event. 3. Form Objects and Elements. 4. Changing Attribute Values Dynamically. 5. Changing an Option List Dynamically. 6. Evaluating Check Box Selections 7. Changing Labels Dynamically 8. Manipulating form Elements. 9. Using Intrinsic JavaScript Functions, Disabling Elements, Read-Only Elements. | **3** | **06** | **10** |
| **Unit 4**  **Cookies and Browser Data** | 1. Create cookies based on given problem. 2. Develop JavaScript to manage a cookie in the given manner. 3. Develop JavaScript to manipulate the specified attributes of window object in the given manners. 4. Write JavaScript to create browser history of the given object. | 1. **Cookies -** Cookie Basics, Creating a Cookie, Writing a Cookie value, Reading a Cookie value, Setting the Expiration Date of cookie, Deleting a Cookie 2. **Browser -** Open the Window, Giving the New Window Focus, Window Position, Changing the Contents of a Window, Closing the Window, Scrolling a Web Page, Opening Multiple Windows at Once, Creating a Web Page in a New Window, JavaScript URLs, JavaScript Security, Timers, Browser Location and History. | **4** | **06** | **08** |
| **Unit 5**  **Regular Expression, Rollover and Frames** | 1. Compose relevant regular expression for the given character pattern search. 2. Develop JavaScript to implement validations using the given regular expression. 3. Create frames based on the given problem. 4. Create window object as per the given problem. 5. Develop JavaScript for creating rollover effect or the given situation. | 1. **Regular Expressions -** Language of a Regular Expression, Finding Non matching Characters, Entering a Range of Characters, Matching Digits and Non digits, Matching Punctuation and Symbols, Matching Words, Replace Text Using a Regular Expression, Return the Matched Characters, Regular Expression Object Properties. 2. **Frames –** Create a Frame,Invisible Borders of frame, Calling a Child Window’s, Changing the Content and focus of a Child Window, Writing to a Child Window, Accessing Elements of Another Child Window. 3. **Rollovers-C**reating a Rollover, Text Rollovers, Multiple Actions for a Rollover, More Efficient Rollovers | **5** | **08** | **14** |
| **Unit 6**  **Menus, Navigation and Web Page Protection** | 1. Develop JavaScript to manage the given status bar. 2. Develop JavaScript to create a given banner. 3. Develop JavaScript to create the given slide show. 4. Develop JavaScript to create the given Menu. 5. Write JavaScript to protect a webpage in the specified Manners. | 1. **Status Bar-** Building a Static Message, Changing the Message Using Rollovers, Moving the Message Along the Status Bar. 2. **Banners-** Loading and Displaying Banner Advertisements, Linking Banner Advertisements to URLs. 3. **Slideshows-** Creating a Slideshow 4. **Menus-** Creating a Pull-Down Menu, Dynamically Changing a Menu, Validating Menu Selections, Floating Menu, Chain Select Menu, Tab Menu, Popup Menu, Sliding Menu, Highlighted Menu, Folding Tree Menu, Context Menu, Scrollable Menu, Side Bar Menu. 5. **Protecting Your Web Page -** Hiding Your Code, Disabling the Right Mouse Button, Hiding JavaScript, Concealing Your E-mail Address. 6. Framework of JavaScript and its Application | **6** | **08** | **12** |

**4. LIST OF PRACTICALS:**

| **Sr No.** | **PRACTICAL OUTCOMES (PrOs)** | **CO NO.** |
| --- | --- | --- |
|  | Write a simple JavaScript with HTML for arithmetic expression evaluation and message printing. | 1 |
|  | Develop JavaScript to use decision making and looping statement. | 1 |
|  | Develop JavaScript to implement Array functionalities. | 2\* |
|  | Develop JavaScript to implement function. | 2 |
|  | Develop JavaScript to implement String. | 2 |
|  | Create a webpage using Form Element. | 3\* |
|  | Create a webpage to implement Form Event | 3 |
|  | Develop a webpage using Intrinsic JavaScript Function | 3 |
|  | Develop a webpage for creating session and persistent cookies.  Observe the effect with Browser cookie setting. | 4 |
|  | Develop a webpage for placing the Window on the screen and working with child window. | 4 |
|  | Develop a webpage for validation of form field using regular expressions. | 5 |
|  | Develop a webpage with Rollover effect. | 5 |
|  | Develop a webpage for implementing Menus. | 6 |
|  | Develop a webpage for implementing Status bars and Web Page Protection. | 6\* |
|  | Develop a webpage for implementing Slideshow. | 6 |
|  | Develop a webpage for implementing Banners. | 6\* |

***Note***

1. *The entire above listed practical’s need to be performed compulsorily except star (\*) marked, so that the students reach the ‘Precision level of Dave’s Psychomotor Domain Taxonomy.*
2. *The Process and Product related skills associated with each practical outcome shall be assessed on basis of following performance indicators.*

| **S. No.** | **Performance Indicators** | **Weightage in %** |
| --- | --- | --- |
|  | Use of relevant tags and attribute | 20 |
|  | Correctness of Coding | 30 |
|  | Testing and Debugging of program | 30 |
|  | Quality of input and output displayed (messaging and formatting) | 10 |
|  | Submit Practical report in time | 10 |
| Total | | 100% |

The above PrOs also comprise of the following social skills/attitudes which are Affective Domain Outcomes (ADOs) that are best developed through the laboratory/field based experiences:

1. Follow safety practices.
2. Practice good housekeeping.
3. Demonstrate working as a leader/a team member.
4. Follow ethical Practices.

The ADOs are not specific to any one PrO, but are embedded in many PrOs. Hence, the acquisition of the ADOs takes place gradually in the student when s/he undertakes a series of practical experiences over a period of time. Moreover, the level of achievement of the ADOs according to Krathwohl’s ‘Affective Domain Taxonomy’ should gradually increase as planned below:

* ‘Valuing Level’ in 1st year
* ‘Organising Level’ in 2nd year and
* ‘Characterising Level’ in 3rd year

**5. SUGGESTED STUDENT ACTIVITIES**

Other than the classroom and laboratory learning, following are the suggested student-related ***co-curricular*** activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should conduct following activities in group and prepare reports of about 5 pages for each activity, also collect/record physical evidences for their (student’s) portfolio which will be useful for their placement interviews:

* 1. Prepare journal of practical’s.
  2. Undertake micro-projects using application development concept of advance java.

**6. SUGGESTED INSTRUCTIONAL STRATEGIES**

Following are suggested instructional strategies, which the teacher can adopt for the attainment of the various outcomes in this course:

1. Massive open online courses (***MOOCs***) may be used to teach various topics/sub topics.
2. About 10-15% of the topic/ subtopic/ content which is relatively simple an descriptive in nature may given to the students for self learning, for self directed learning and asses the development of CO’s through class room presentation.
3. Guide student(s) in undertaking micro-projects.
4. Demonstrate students thoroughly before they start doing the practice.
5. Use different instructional strategies in classroom teaching.
6. Observe continuously and monitor the performance of student in lab.

**7. SUGGESTED MICRO-PROJECTS.**

Only one micro-project is to be undertaken by a student in the beginning of the semester. S/he ought to submit it by the end of semester. Each micro-project should include two or more Cos. The micro-project could be industry application based, internet based, laboratory based, field based and survey based. In the all semesters, it could be group-based (5 to 6 Student) to build up skill and confidence in every student. Each student will have to maintain dated work diary consisting of individual contribution in the project work and give a seminar presentation of it before submission. The student ought to submit micro-project by the end of the semester to develop the industry oriented COs. A suggested list is given below.

1. Develop web Application for Library.
2. Develop web Application for Hotel.
3. Develop web Application for Income Tax (Return/ filling).
4. Develop web Application for small Bank.
5. Develop web Application for Proprietor.
6. Develop web Application for Hospital.
7. Develop web Application for Student.(Attendance/ TC/ Hostel/ Book Bank/ etc)
8. Develop web application for Personal Asset Management.
9. Develop web Application for Inventory Management and Order Placing.
10. Develop Web application for Energy Billing.
11. Any other micro-project suggested by subject faculty on similar line.

**8. MAJOR EQUIPMENTS/INSTRUMENTS REQUIRE**

| **Sr No.** | **Equipment Name with Broad Specification** | **Practical No.** |
| --- | --- | --- |
| **1** | **Computer System (any computer system with basic configuration)** | **All Practical** |
| **2** | **Browser and Text Editor** |
| **3** | **IDE like eclipse, etc** |
| **4** | **Web Page design tools.** |

**9**. **SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN**

| **Unit No.** | **Unit Title** | **Marks per Unit** | **Distribution of Theory Marks** | | | **Total Marks** |
| --- | --- | --- | --- | --- | --- | --- |
| **R**  **Level** | **U**  **Level** | **A**  **Level** |
| **1** | **Basics of JavaScript Programming** | 12 | 4 | 4 | 4 | 12 |
| **2** | **Arrays, Function and String** | 14 | 2 | 4 | 8 | 14 |
| **3** | **Form and Event Handling** | 10 | 2 | 4 | 4 | 10 |
| **4** | **Cookies and Browser Data** | 08 | -- | 4 | 4 | 08 |
| **5** | **Regular Expression, Rollover and Frames** | 14 | 2 | 4 | 8 | 14 |
| **6** | **Menus, Navigation and Web Page Protection** | 12 | 4 | 4 | 4 | 12 |
| Total | | 70 | 14 | 24 | 32 | 70 |

**R**= Remember, **U**= Understanding, **A**=Application and above (*Bloom’s Revised taxonomy)*

***Note****: This specification table provides general guidelines to assist student for their learning and to teachers to teach and assess students with respect to attainment of UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may vary from above table.*

**10. SUGGESTED LEARNING RESOURCES:**

| **Sr. No.** | **Title of Book** | **Author** | **Publication** |
| --- | --- | --- | --- |
| 1. | JavaScript DeMYSTiFied | Keogh. Jim | McGraw Hill, 2015 New Delhi. ISBN: 0-07-060347-2 |
| 2. | Beginning JavaScript | Wilton, Paul | Wily India, New Delhi, 2015 ISBN:0-7645-5587-1 |
| 3. | Beginning JavaScript | McPeak. Jeremy and Wlton. Paul | Wily India, New Delhi, 2015 ISBN:81-265-1304-7 |
| 4. | JavaScript in 24 Hours  (SAMS Teach Yourself) | Moneur, Michael | Tech Media, New Delhi, 2015 ISBN: 978-0-672-33608-9 |

**11. SOFTWARE/LEARNING WEBSITES.**

1. https://www.w3schools.com/js/
2. http://www.nptelvodeos.com
3. https://www.tutorialspoint.com/javascript/index.htm
4. https://www.geeksforgeeks.org/javascript-tutorial/

**12. COURSE CURRICULUM DEVELOPMENT COMMITTEE:**

| **SR. NO.** | **NAME** | **DESIGNATION** | **INDUSTRY/INSTITUTE** |
| --- | --- | --- | --- |
| 1 | Mr. R. R. BHOGE | Lecturer in Information Technology | Govt. Polytechnic Amravati |
| 2 | Mr. M. R. Torney | Lecturer in Computer Engineering. | Govt. Polytechnic Amravati |
| 3 | Ms. S. A. Kale | Lecturer in Information Technology | Govt. Polytechnic Amravati |

Govt. Polytechnic, Programme Board of Studies (Information Technology) has approved the above course curriculum on ……….. and is adopted for Information Technology Programme.

CHAIRMAN

PROGRAMME BOARD OF STUDIES,

INFORMATION TECHNOLOGY

GOVERNMENT POLYTECHNIC, AMRAVATI.

The General Board of Studies has approved the above course curriculum on ………..

The Governing Body has approved the above course curriculum on ……….