

 Darshan UNIVERSITY <small>योग: कर्मसु कौशलम्</small>	Graduation Level:	Diploma of Engineering
	Course:	Computer Engineering
	Subject Name:	Java Script Framework
	Subject Code:	2102CS622
	Semester:	6

Type of Course: Professional Elective

Prerequisites: Basic Knowledge of HTML, CSS and Bootstrap

Course Objective / Rationale: This course enables student to explore java script frameworks.

Teaching & Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				SEE	CIA	SEE	CIA	
3	0	2	4	70	30	25	25	150

Contents:

Unit No.	Topic	Total Hours	Weightage %
1	Introduction to JavaScript Overview of JS, Syntax and execution of JS, Internal and External JS, Variables, arrays, String functions, conditions, loops, Pop up boxes, Inbuilt, functions, Validations and Regular expressions	08	20
2	Interactive Web Page Design using JavaScript and jQuery Objects and DOM, Event handling, Callbacks, Function as arguments. Introduction to JQuery, Exploring JQuery	10	20
3	ES6 Classes, Arrow Function, Variables, Array Methods, Destructuring, Modules, Spread Operator	08	20
4	NodeJS Introduction to Node JS, Setup Development Environment, Node JS Modules, Node Package Manager, Creating Web Server, File System, Debugging Node JS Application, Events	09	20
5	ExpressJS Express JS, Serving Static Resources, Introduction of MongoDB, Database Connectivity, API using NodeJS	10	20

Suggested Specification Table with %Marks (Theory)

Distribution of Theory Marks %					
R Level	U Level	A Level	A Level	E Level	C Level
20%	30%	50%	0%	0%	0%

R: Remembrance; U: Understanding; A: Application, A: Analyse; E: Evaluate and C: Create and above Levels
(Revised Bloom's Taxonomy)

Suggested List of Experiments / Exercises:

Ex. No.	Unit No.	Practical / Exercise	No. of Hrs.
1	1	Practice JavaScript funtions 1. WAP to make simple calculator using dialogue box 2. WAP to concat two or more strings. 3. WAP to demonstrate the use of various inbuilt string functions like charAt(), charCodeAt(), startsWith(), endsWith(), includes(), indexOf(), lastIndexOf(), match(), repeat(), replace("", ""), search(), split(), substr(start, length), substring(start, end), toString(), trim(). 4. WAP to explore inbuilt string functions slice(), toLowerCase(), toUpperCase(), valueOf(), fromCharCode().	2
2	1	Practice JavaScript Program 1. WAP to check whether the given no. is prime or not. 2. WAP to find the factorial of given number. 3. WAP to print the Fibonacci series of a number. 4. WAP to check whether the given number is palindrome or not. 5. WAP to print prime numbers between the two given numbers. 6. WAP to print sum of first 'n' Natural number (sum =1 + 2 + 3+ ... +n). 7. WAP to check whether the given number is Armstrong or not. 8. WAP to print the factors of given number. 9. WAP to print the GCD of two number. 10. WAP to print LCM of two numbers.	2
3	1	Array in JavaScript 1. WAP to create an array of countries, read values of an array from user and print it. 2. WAP to read a numeric array from user and find maximum number from it. 3. WAP to demonstrate use of various inbuilt function on an array like push, pop, sort. 4. WAP to read an array from user and sort them in ascending order (without using inbuilt function).	2
4	1	Validation in JavaScript 1. WAP to prepare student registration form and validate it using JavaScript. 2. WAP using HTML, CSS, JavaScript to design simple calculator with GUI. 3. WAP using HTML, CSS, JavaScript to design advance calculator with GUI.	2
5	2	Mouse and Keyboard events in JavaScript 1. WAP to change background color on click of button. 2. WAP for following effect: If the mouse is over heading, change font color to "red" and if the mouse goes out of the heading change it to "black". 3. WAP to print current date and time on click of "Date and Time" button. 4. WAP to recognize which mouse event is fired. 5. WAP to recognize which keyboard event is fired. 6. WAP to design a form using HTML and JavaScript that asks the user to enter his date of birth and on clicking the Calculate Button it calls the function that calculates how many days are left in your birthday. 7. WAP to greet a user as per the current time. E.g. if anyone opens page at 08:00 am it should greet GOOD Morning. 8. WAP to demonstrate callbacks in JavaScript. 9. WAP to demonstrate change in properties of HTML element using JavaScript.	2
6	2	Practice JQuery 1. WAP to design a form using HTML and JavaScript that asks the user to enter his date of birth and on clicking the Calculate Button it calls the function that calculates how many days are left in your birthday. 2. WAP to greet a user as per the current time. E.g. if anyone opens page at 08:00 am it should greet GOOD Morning. 3. WAP to demonstrate callbacks in JavaScript. 4. WAP to demonstrate change in properties of HTML element using JavaScript.	2
7	2	JQuery effect, Dom manipulation and Traversing	2

		1. WAP using HTML, CSS, JQuery to design simple calculator with GUI. 2. WAP to demonstrate Effects in JQuery. 3. WAP to demonstrate DOM Manipulation in JQuery. 4. WAP to demonstrate Traversing in JQuery.	
8	3	ES6 array methods in JavaScript 1. Demonstrate map() method 2. Demonstrate filter() method 3. Demonstrate find() method 4. Demonstrate every() method	2
9	3	Destructuring of ES6 features in JavaScript 1. Demonstrate the Array and Object Destructuring. 2. Demonstrate the Arrow functions. 3. Demonstrate how to create a class in Java Script.	2
10	4	Practice NodeJS 1. Demonstrate the use of Node Package Manage (NPM). 2. Demonstrate “path” core module in NodeJS. 3. Demonstrate “fs” core module in NodeJS. 4. Demonstrate “child_process” core module in NodeJS. 5. Demonstrate the use of EventEmitter in NodeJS. 6. WAP in NodeJS to store the student details in text file.	2
11	4	Create web app using NodeJS 1. Create a hello world webapp using “http” core module in NodeJS. 2. Create a webapp with 5 pages like about, contact etc.. using “http” core module in NodeJS. 3. Create a webapp in NodeJS which reads files like about.txt, contact.txt and display it using http core module.	2
12	5	Application using ExpressJS 1. 1. Create a hello world webapp using ExpressJS. 2. Create a webapp with 5 pages like about, contact etc.. using ExpressJS. 3. Create a webapp in NodeJS which reads files like about.txt, contact.txt and display it using http core module	2
13	5	Practice ExpressJS 1. Demonstrate the use of middleware in Express. 2. Demonstrate the use of static middleware in Express. 3. Install MongoDB and MongoDBCompass 4. Setup documents in MongoDB.	2
14	5	Database operation in ExpressJS 1. Install Mongoose library using NPM. 2. Demonstrate the use mongoose functions. 3. Create a Database using MongoDBCompass for faculty. 4. Create a Database using MongoDBCompass for student. 5. Create a Database using MongoDBCompass for product.	2
15	5	Create RESTAPI using MongoDB, NodeJS & ExpressJS 1. Create a restful CRUD API using NodeJS, Express and MongoDB for faculty. 2. Create a restful CRUD API using NodeJS, Express and MongoDB for student. 3. Create a restful CRUD API using NodeJS, Express and MongoDB for product.	2

Course Outcome:

1. **apply** client-side scripting using JavaScript
2. **apply** client-side scripting using JavaScript
3. **execute** ES6 Concepts
4. **understand** NodeJS
5. **implement** api using ExpressJS

Suggested List of Student Activities: (If Any)

Sr. No.	Activity
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1.	Prepare different types of application

Learning Resources:

A. Text & Reference Books:

B. Major Equipment:

1. Computer Systems with latest configuration

C. Software:

D. Learning Websites:

- 1.