Department: Information Science and Engineering	**Course Type: Laboratory**
Course Title: WEB PROGRAMMING LAB	**Course Code:**18ISL67

L-T-P: 0-2-2	**Credits: 2**
Total Contact Hours: 26 hrs	**Duration of SEE:**3 hrs
SEE Marks: 50	**CIE Marks:** 50

Pre-requisites:

- No prerequisite (Basic knowledge of HTML and CSS will be helpful)

Course Outcomes: Students will be able to:

Cos	Course Outcome Description	Blooms Level
1	Understand the core concepts of javascript and nodejs	L2
2	Apply appropriate features of javascript for building the web application	L3
3	Implement the web application using MVC architecture.	L3
4	Develop the fully functional real time applications	L3

Teaching Methodology:

- Hands on training
- Capstone Projects
- Assignments

Assessment Methods:

- 50 marks CEE will be distributed as
    - 20 Marks - Internal Assessment
    - 20 Marks - Learning Assessment - Mini Project
    - 10 Marks - Continuous Internal Evaluation (Attending classes, Ontime submission of work in git repository)
- Rubric based evaluation for 20 Marks Mini Project

Mapping of Cos, Pos & PSO's:

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	P O8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
CO1	3								2	2				2
CO2	3	2	3	2					2	2				2
CO3	3	2	3	2					2	2				2
CO4	3	2	3	2					2	2				2
18ISL 67	3	2	3	2					2	2				2

SYLLABUS

MODULE – I: Basics	
Introduction to ECMAScript, JavaScript basics, JavaScript first steps, JavaScript building blocks, Introducing JavaScript objects	
MODULE – II: Fundamentals	
Introduction, Grammar and types, Control flow and error handling, Loops and iteration, Functions, Expressions and operators, Numbers and dates, Text formatting, Regular expressions, Indexed collections, Keyed collections, Working with objects, Details of the object model, Using promises	
MODULE – III: Intermediate level	
Client-side web APIs**,** JavaScript data structures, Equality comparisons and sameness, Closures, Classes and object oriented feature	
MODULE – IV: NODEJS	
Introduction to Nodejs, Basic CRUD operations, REST API	
MODULE – V : PROJECT	
One capstone project (detailed) with few other real time applications in demo	

Reference:

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

Exploring ES6 - https://exploringjs.com/es6/ Eloquent JavaScript: 3rd Edition https://eloquentjavascript.net/

20 Marks Internal Assessment will be consisting of 3 parts

- General Question - 5 Marks
- Problem based question - 10 Marks
- Viva / Presentation of a Topic - 5 Marks

General Questions:- These will consist of independent javascript features, which will be programmatic as well as theoretical, meaning the students will be expected to describe the theoretical aspect of the question as well as they should be able to write a code snippet for the same. The set of questions contained in the link attached below can provide more clarity. *These questions are given just for reference and the same may or may not appear in the exam but the pattern remains the same for any concept.*

Problem Based Questions:- These questions will consist of multiple sub tasks that have to be executed in a sequential manner in order to complete the task. Approach for this will follow the below pattern
A problem statement will be given, then students have to read that and first they have to write down the methodology of solving the problem step by step (for instance What are the data structures used ? What are the variables required ? What are the functions required ? How are they organized ? How are they called ? What are the dependencies in the flow ? and so on.)

Viva / Presentation of a Topic:- This section students will have an option to choose whether they want to answer the conventional viva questions or they want to present or share the knowledge of some special topic in javascript with the class.

20 Marks Mini project will be assessed based on the rubric evaluation

5 Marks	5 Marks	5 Marks	5 Marks
Interface and design	Approach to problem solving	Git Repository and hosting	Presentation and Demo
The project needs to have proper UI (need not to be having too much of styling but at least minimal design), which includes DOM elements, interaction with users, and responses.	This step includes the proper usage of variables, data structures, functions, all different features of js and coding conventions. This also includes the code optimization.	Github repository of the project asto be created and the project should be hosted on any free server like Heroku or any similar platforms.	Demonstration and presentation will be considered individually based on code originality, and understanding of the complete project.

Sample General Questions

https://github.com/sudheerj/javascript-interview-questions#table-of-contents

https://www.guru99.com/javascript-interview-questions-answers.html

Sample Problem Based Question

Collect the information required about the student or employee or customer or any of your choice using a web interface and provide the functionality to search the user details based on the id and provide a functionality to see all the data.

Approach to problem based question

Students are expected to write the approach first before starting typing the code. A sample approach can be as follows, specifying the variables, function names are well and good.

Student data

read data - usn, studentName, branch, sem, cgpa[7,8.6,8.9,9,9.2], phone

use an array of objects to store the data - [{},{},{},...] { usn: name: branch: }

on a web interface there should be, input fields to read these data (submit click)

then add a fetch detail link, use an input field to read the unique id of the user

then call a function to fetch the details using the input value as a parameter and display the details of respective user

Add a button to fetch the complete user data and display it in a specific div section of the browser which in turn calls a function and loops over the array to print all the data.