LOK JAGRUTI UNIVERSITY (LJU)

INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Information Technology (702)

Bachelor of Technology (B.E.) – Semester - III

Course Code:	017023392		Teaching Scheme				
Course Name:	**Full Stack Development with Javascript-1**		Lecture (L)	Tutorial (T)	Practical (P)	Credit	Total Hours
Category of Course:	Engineering Science Course (ESC)						
Prerequisite Course:	Computer Programming using C(017022191), Introduction to Computer Networks(017023293)		3	0	6	6	30

Syllabus				
Unit No.	Topic	Prerequisite Topic	Successive Topic	Teaching Hours
01	**Introduction to Web and Web design**			1 (5%)
	1.1 Basics of WWW, HTTP Protocol: Features, Request and Response, URL, Client Server architecture	Web, HTTP and DNS(017023293-Unit-9.2)	---	
	1.2 Concepts of Effective Web Design:Website Planning, Web design issues: Browser Compatibility, Bandwidth and Cache, Display Resolution, Look and Feel of Website, Page Layout and Linking, Designing Effective Navigation	---	---	
02	**Introduction to HTML**			4 (10%)
	2.1 Basics of HTML:HTML Page Structure, Building Blocks of HTML:<html>,<head>,<title>,<body>, Editors(Notepad, Notepad++, Sublime Text, VS Code)	---	---	
	2.2 Data formatting tags:<b>, <i>, <u>, <em>, <strong>, <font>, , <hr>, <center>, <sup>, <sub>, <del>, <mark>, <small>, <big>, <ins>, Heading:<h1> to <h6>, Paragraph:<p>, <pre>, Links:<a>, href, target, name attributes, Images:<img>, src, alt attributes, <meta>:name, content	---	---	
	2.3 Lists: , , , <dl>, <dt>, <dd>, type attribute, Form:<form>, action & method attributes, <input>: type attrbutes: text, radio, checkbox, submit, button, file,password, reset, date, email <textarea>:rows & cols attributes, <label>, <fieldset>,<legend>,<select>, <option>,<optgroup>, Frame:<frameset>:rows, cols attributes, <frame>: src attribute, Table:<table>, <tr>, <td>, <th>, <thead>, <tbody>, <tfoot>, <caption>	---	DOM, Modeling a document, traversing and modifying a DOM tree, DOM collections (FSD-2-Unit-4.2)	
	2.4 HTML Block and Inline Elements:<div> and <span>	---	DOM, Modeling a document, traversing and modifying a DOM tree, DOM collections (FSD-2-Unit-4.2)	
03	**Advance HTML**			3 (10%)
	3.1 HTML Media: Audio:<audio>,<source>, Video:<video>,<source>, YouTube:<iframe>	---	---	
	3.2 HTML Graphics: SVG: Circle, Rectangle, Rounded Rectangle, Star, Logo, Canvas Basics	---	---	
	3.3 HTML5 Tags: Area, Map, Header, Footer, Aside, Article, Meter	---	---	
04	**Introduction to CSS**			4 (10%)
	4.1 Significance of CSS, Structure of CSS, Syntax and Types of CSS: <style> tag, Inline, Internal, External	---	---	
	4.2 Various CSS Selectors: Id, Class, Pseudo class, Pseudo element, Attribute, Universal, Descendant, Child	---	---	
	4.3 Background Rules: background-color, background-image, background-repeat, background short hand, Color Property, Text Manipulation: text-indent, text-decoration, text-transform, text-align, Fonts: font-family, font-style, font-size, font-variant, font-weight	---	---	
	4.4 Border: border-style, border-width, border-color, border shorthand, Boxes: Margins, Padding, float property	---	---	
05	**Advance CSS**			3 (10%)
	5.1 Style images: Rounded Images, Thumbnail, Responsive Images, Transparent Images, Flip, Gradients: Linear, Radiant, Conic, Transitions: Delay, Duration, Property, Animation: Name, Duration, Delay, Iteration Count, Direction, Tool-tips: display property, Visibility, width, background-color, color, text-align	---	Selectors, Events, JQuery HTML(FSD-2-Unit-6.2)	
	5.2 Buttons: background-color, border, color, padding, text-align, display, font-size, Multiple column: column-count, column-gap, column-rule-style, Pagination: Simple, Active and Hoverable, Border, Pagination Size, Variables Basics	---	Selectors, Events, JQuery HTML(FSD-2-Unit-6.2)	

	5.3 2-D Transformation: translate, rotate, scaleX, scaleY, scale, Media Queries: Syntax, Media Types	---	---	
06	**Introduction to Bootstrap**			**2 (10%)**
	6.1 What is Bootstrap?, Why use Bootstrap?, Bootstrap setup, Containers: Fixed, Fluid, Typography: Heading, Abbreviation, Lists , Colors: text, background, Grid System, Tables: Striped, Bordered, Hover, Contextual Classes: active, success, warning, danger	---	---	
	6.2 Images: Rounded, Circle, Thumbnail, Alerts: Success, Info, Warning, Danger, Button: Style, Size, Active, Disabled, Spinner, Jumbotron	---	---	
	6.3 Progress Bars: Default, Labels, Stripped, Animated, Multiple, Spinners: Simple, Growing, Button, Pagination: Basic, Active, Disabled, Dropdown: Basic, Divider, Header, Dropup, Collapse: Basic, Accordian	---	---	
07	**Bootstrap5**			**3 (10%)**
	7.1 Navs: Nav Menu, Tabs, Navbar: Basic, Colored, Brand/Logo, Dropdown, Forms and Buttons, Carousel: How to create, Add Caption, Modal: How to create, Animation, Scrollspy, Flex: Horizontal, Vertical, Justified	---	---	
	7.2 Forms: Stacked form, Textarea, Inline Forms, Plain Text, Color Picker, Select Menus, Check, Radios, Toggle Switch, Form Validation	---	---	
	7.3 Grid system: Classes, Stacked and Horizontal, Small, Medium and Large Grid	Grid System(017023392– Unit-6.1)	---	
08	**Javascript**			**4 (10%)**
	8.1 Basics of Javascript: Client Side Scripting with JS, Overview, Characteristics and Advantages, Internal and External Javascript	---	Node.js file system, URL module(FSD-2-Unit-9.2)	
	8.2 Conditions: If, If…Else, Functions: Syntax, Calling function on some event, Loops: for, while, do…while, Datatype and Variables: Primitive Datatype: String, Boolean Number, Non-primitive Datatype: Object, Array:1-D Array, Inbuilt functions: Math: abs(), ceil(), floor(), sqrt(), pow(), String: charAt(), charCodeAt(), concat(), indexOf(), split(), substr(), substring(), toLowerCase(), toUpperCase(), Date Manipulation	If, Else if, Nested if (017022191 – Unit-3.1), Entry & Exit Controlled Loop(017022191 – Unit-4.1), One Dimensional Array(017022191 – Unit-5.1), Unser Defined Functions(017022191 – Unit-7.2)	Node.js file system, URL module(FSD-2-Unit-9.2)	
	8.3 Pop up Boxes: Alert, Confirm, Prompt	---	Node.js NPM, Callback concepts, Events:Event loop, Event emitter, Upload files(FSD-2-Unit-9.3)	
09	**Advance Javascript**			**3 (15%)**
	9.1 Document Object Model(DOM): document object, DOM Methods: write(), getElementById() getElementsByClassName(), getElementsByTagName(), Traversing and Modifying DOM Tree: innerHTML, attribute, setting style	Unser Defined Functions(017022191 – Unit-7.2)	Filters, Services, Tables, HTTP (FSD-2-Unit-8.3)	
	9.2 Event Handling with Javascript, Form Processing: How to fetch form elements?, Various Mouse and Key Events: onclick, onblur, onchange, onfocus, onmouseover, onmouseout, onkeyup, onkeydown, onkeypress, onsubmit event of form Event Object and This	<form> & <input>(017023392– Unit-2.2)	Filters, Services, Tables, HTTP (FSD-2-Unit-8.3)	
	9.3 Javascript Validation, Regular Expression: Notations to Create R.E., test() method to compare R.E. & string, R.E. For Specifying Special Character, Length of Field, Numeric Value, Email ID	Unser Defined Functions(017022191 – Unit-7.2)	FSD-2(Unit-3,4,9,10)	
10	**Ecmascript Version 6**			**3 (10%)**
	10.1 Var,Let and Const Keywords, Template Literals, New Strings Methods: includes(), startsWith(), endsWith()	Unser Defined Functions(017022191 – Unit-7.2)	Filters, Services, Tables, HTTP (FSD-2-Unit-8.3)	
	10.2 Array Destructuring, ES6 Objects: Initializers, Constructor, Constructor Function, Object Destructuring	One Dimensional array(017022191 – Unit-5.1)	Filters, Services, Tables, HTTP (FSD-2-Unit-8.3)	
	10.3 Fat Arrow Functions: for/of loop, Maps, ES6 Default Parameters: Default Parameter Values, Function Rest Parameter	---	---	

Sr No.	Practical Title	Link to Theory Syllabus
1	Write HTML script to generate following design. 	Position	Name	City	 	Sales Manager	I. Hawthorn Shield II. Green Shield	A.UK B.Netherland		Unit-2
2	Write HTML code to display following irregular table. Table with cells: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q	Unit-2
3	What is HTML form tag? Discuss the different form attributes and design a simple form to register student including name, roll no., semester, email, mobile number, gender, hobbies, and feedback, and also create two buttons submit and reset.	Unit-2
4	Write an HTML code to embed a video in a web document.	Unit-3
5	Draw a square using HTML5 SVG, fill that square with yellow color, and make 5px blue stroke width.	Unit-3
6	Draw a star in SVG HTML. SVG Star Drawing	Unit-3
7	Write an External CSS with following rules. i) To make all the headers with normal font and having size 150%. ii) To display the paragraphs in arial font with bold style. Show the use of above css with html file by linking it.	Unit-4
8	Write down HTML/CSS code to create table with 5 rows and 3 columns. Even no. of rows display in green color and odd no. of rows display in yellow color.	Unit-4
9	Write a CSS rule for XHTML document that displays all the links in blue without underlying them, when the mouse hover the link change the link's background color to yellow	Unit-4
10	Demonstrate Moving Left animation using keyframe.	Unit-5
11	Demonstrate rotate(), scale(), scaleX() and scaleY() methods.	Unit-5
12	Design following using CSS pagination. « 1 2 3 4 5 6 »	Unit-5
13	Design following using Bootstrap Jumbotron. Full-width Jumbotron Jumbotron specifies a big box for getting extra attention to some special content or information. This is some text. This is another text.	Unit-6
14	Design following using Bootstrap typography.	Unit-6

15	Demonstrate the examples of Bootstrap alerts.	Unit-6
16	Design following using Bootstrap flex. 	Unit-7
17	Design following using Bootstrap5 form validation. 	Unit-7
18	Write a program using Java Script, which sorts elements of an array in descending order using bubble sort.	Unit-8
19	Write a JavaScript that uses function to calculate how many days are left in your birthday?	Unit-8
20	Write a JavaScript that handles following mouse events. Add necessary elements. (i) JavaScript gives the key code for the key pressed. (ii) If the key pressed is "a","e","i","o","u", the script should announce that vowel is pressed. (iii)When the key is released background should change to blue.	Unit-9
21	Design a login form using HTML & JavaScript with following validations on username and password fields. 1. Password length must be 6 to 12 characters 2. Username should not start with _, @ or number. 3. Both should not be blank.	Unit-9
22	Demonstrate the difference between var, let and const keywords using an ES6 program.	Unit-10
23	Demonstrate the usage of Fat Arrow function and Default parameter.	Unit-10

Major Components/ Equipment	
Sr. No.	**Component/Equipment**
1	Computer
2	Software: code::blocks, Editor, Bootstrap libraries

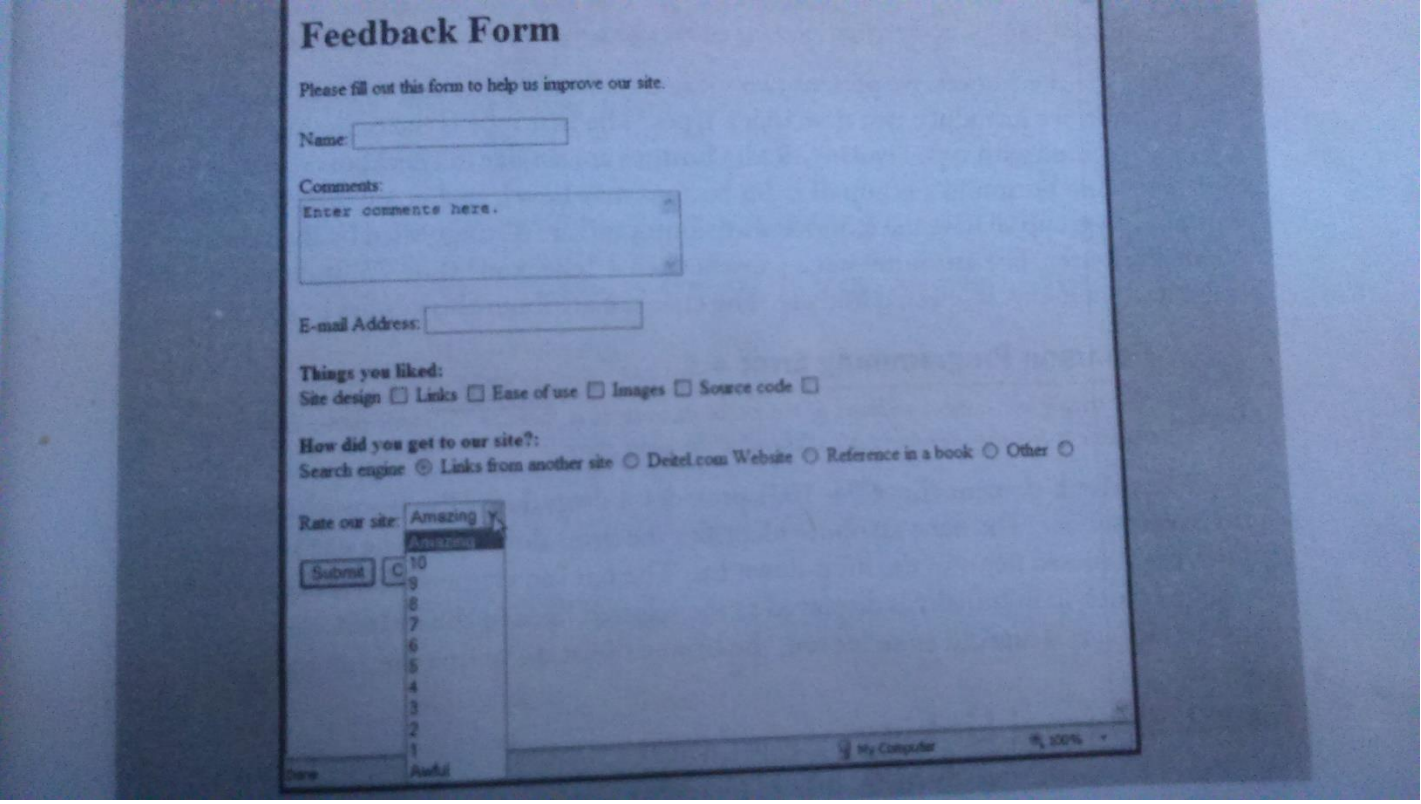| Proposed Theory + Practical Evaluation Scheme by Academicians (% Weightage Category Wise and it's Marks Distribution)						
L:	**3**	**T:**	**0**		**P:**	**6**
Note : In Theory Group, Total 4 Test (T1+T2+T3+T4) will be conducted for each subject. **Each Test will be of 25 Marks.** **Each Test Syllabus Weightage: Range should be 20% - 30%**						
Group (Theory or Practical)	**Group (Theory or Practical) Credit**	**Total Subject Credit**	**Category**	**% Weightage**	**Marks Weightage**	
Theory			MCQ	20%	40	
Theory	**3**		Theory Descriptive (Mainly Queries or Programme)	30%	60	
Theory			Formulas and Derivation	0%	0	
Theory			Numerical	0%	0	
Expected Theory %	**50%**	**6**	**Calculated Theory %**	**50%**	**100**	
Practical			Individual Project	13%	25	
Practical			Group Project	13%	25	
Practical	**3**		Internal Practical Evaluation (IPE)	35%	50	
Practical			Viva	0%	0	
Practical			Seminar	0%	0	
Expected Practical %	**50%**		**Calculated Practical %**	**50%**	**100**	
Overall %	**100%**			**100%**	**200**	

Course Outcome	
1	Understand the concepts of web and learn HTML to create and manage user friendly web pages .
2	Explore the features of CSS to design and implement professional and responsive web pages for rich User Interface.
3	Learn Bootstrap framework for developing responsive and modern web designs.
4	Create interactive web pages to improve the user experience using client-side scripting with JavaScript and EcmaScript.
Suggested Reference Books	
1	HTML 5 Black Book 2Ed, By Kogent Learning Solutions Inc.
2	Javascript For Impatient Programmers By Dr. Axel Rauschmayer
3	Full Stack Javascript By Azat Mardan, Apress Publilcation
4	Spurlock Jake, Bootstrap: Responsive Web Development. O'Reilly Media, Inc.
5	Charlton Ting And R Allen Wyke, Pure Javascript By Jason D. Gilliam, Techmedia

List of Open Source Software/Learning website	
1	www.geeksforgeeks.org
2	www.tutorialspoint.com
3	www.programiz.com
4	www.codingninjas.com

Practical Project/Hands On Project		
Sr. No.	**List of Practical Projects**	**Linked with Unit**
1	Design following. 	Unit 2,3
2	Design following form: 	Unit 2,3
3	Create a responsive web page using Bootstrap functionalities, so that it can be viewed uniform on any device.	Unit 6,7

4	Do as directed:
	
	Write a JavaScript that handles following mouse events. Add necessary elements.
	  (i) If the mouse is over the heading, that heading should turn yellow and if the mouse goes out of the heading it should turn black.
	  (ii) If find time button is clicked show time and date information. If button named "red" is clicked, background should change to red and If button named "green" is clicked, background should change to green.
		Unit 8,9

5	Write a ES6 script to define two arrays of 5 elements. Perform following operations on arrays.
	  1. Make arrow function to merge both arrays in 3rd array.
	  2. Find second maximum from both arrays.
	  3. Find summation of both individual arrays
		Unit-10