School of Computer Science

M. Sc. (Information Technology) Programme

Subject Code & Name: MITME105-1- Web Programming

Teaching And Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
				CCE		SEE	
L	T	P	Total	TH	PWE	TH	PWE
2	-	2	4	25%	25%	25%	25%

Programme Name	M. Sc. (Information Technology)
Semester	1
Course Code	MITME105-1
Course Title	Web Programming
Course Content Type (Th. / Pr.)	Th.+ Pr.
Course Credit	2+2
Sessions + Lab Per Week	2+4
Total Teaching/ Lab Hours	30+60
*** 2 Lab = 1 session**	

Learning Objectives
Upon successful completion of this course, students will be able to: • Understand the fundamental concepts of web technologies and client-side web development • Design static and dynamic web pages with the use of HTML tags. • Apply CSS to design attractive, responsive and user-friendly web pages • Learn the fundamental of JavaScript to create interactive web pages and dynamic website features

Learning Outcomes
After successful completion of the course, students will be able to: • Explain the basic concepts of web programming, website, browsers and web services • Create structured web pages using HTML elements, forms, tables, lists, links and multimedia tags • Design visually appealing webpages using CSS properties, layouts, colors and responsive design techniques • Apply concepts of JavaScript with form validation, DOM manipulation in webpage

CLO – PLO Mapping Matrix									
CLO/PLO	**PLO1**	**PLO2**	**PLO3**	**PLO4**	**PLO5**	**PLO6**	**PLO7**	**PLO8**	**PLO9**
CLO1	3	2	1	2	–	–	1	1	2
CLO2	3	3	3	2	–	1	1	1	2
CLO3	3	3	3	3	–	2	1	2	2
CLO4	3	3	3	3	1	2	1	2	2

Detailed Contents		
Unit	**Topic/Sub Topic**	**Teaching Hours**
I Introduction to Internet & HTML	• Introduction to Web technology • Component of a browser window and overview of browser functionalities • client-server model **Introduction to HTML:** • Definition of HTML • Versions of HTML • Basic Structure of HTML Document • Tags, Elements, Attributes • HTML Editors and Browsers **Text Formatting and Page Elements:** • Headings • Paragraphs • Line Break • Horizontal Rule • Bold, Italic, Underline • Superscript / Subscript • Comments • Special Characters **Lists and Links** • Ordered List	15

	• Unordered List • Definition List • Hyperlinks	
II **HTML Tags**	**Images and Multimedia** • Insert Images • Image Attributes • Image as Link • Audio Tag • Video Tag **Tables** • Table Structure • Rows and Columns • Table Heading • Cell Padding / Spacing • Colspan and Rowspan • Nested Tables **Forms** • Form Tag • Input Types • Textbox • Password • Radio Button • Checkbox • Select / Dropdown • Textarea • Submit / Reset Button • Labels **Semantic HTML5** • Header • Footer • Nav • Section • Main	15
III **CSS**	**Introduction to CSS** • What is CSS? • Need of CSS in Web Design **Types of CSS:** • Inline CSS • Internal CSS • External CSS **CSS Syntax and Selectors** • Syntax of Core CSS • Selectors: Element Selector, Class Selector, ID Selector, Group Selector, Universal Selector • Comments in CSS	15

- Colors in CSS
- Background Properties

Text Properties

- Color
- Text Alignment
- Text Decoration
- Text Transform
- Text Indentation
- Letter Spacing
- Word Spacing
- Line Height
- Font Family
- Font Size
- Font Style
- Font Weight

Table Properties and CSS Box Model

- Styling Tables using CSS
- Border Properties
- Width and Height
- Padding
- Margin
- Border Radius
- Table Layout
- Border Collapse
- CSS Box Model:
  - Content
  - Padding
  - Border
  - Margin

List Properties

- Ordered and Unordered List Styling
- list-style-type
- list-style-position
- list-style-image
- Custom Bullet Design

Cursor Style Properties

- cursor: pointer
- cursor: help
- cursor: wait
- cursor: move
- cursor: text
- cursor: not-allowed
- Custom Cursor Basics

Layout Basics

- Display Property

	• Block and Inline Elements • Visibility • Overflow • Float • Clear **Responsive Basics** • Viewport • Relative Units (% , em, rem)	

IV
JavaScript
	JavaScript
	• Introduction to JavaScript
	• Features of JavaScript
	• Uses of JavaScript in Web Development
	• Client-side vs Server-side Scripting
	• JavaScript in HTML
	• Internal and External JavaScript
	• Comments in JavaScript
	Basic Syntax and Variables
	• JavaScript Syntax
	• Statements
	• Variables (var, let, const)
	• Data Types:
	  ○ Number
	  ○ String
	  ○ Boolean
	  ○ Null
	  ○ Undefined
	• Operators:
	  ○ Arithmetic
	  ○ Assignment
	  ○ Comparison
	  ○ Logical
	Control Statements
	• Conditional Statements
	• Looping Statements
	• break and continue
	Functions
	• Function Declaration
	• Function Parameters
	• Return Statement
	• Anonymous Functions
	• Basics of Arrow Functions
	Arrays and Strings
	• Arrays
	• Array Methods (push, pop, length)
	• String Methods
		15

	• Template Literals
	Events and DOM Basics
	• Introduction to DOM
	• Selecting Elements
	• Changing Text and Style
	• Events:
	  ○ Onclick
	  ○ Onmouseover
	  ○ Onchange
	  ○ onsubmit
	Form Validation
	• Input Validation
	• Required Fields
	• Email Validation
	• Password Rules
	• Error Messages
	Browser Objects and Dialog Boxes
	• alert()
	• prompt()
	• confirm()
	• console.log()
	• introduction to window Object	

Reference Books

1. Bayross, I. (2004). Web enabled commercial applications development using HTML, DHTML, JavaScript, Perl CGI. BPB Publications.
2. Xavier, C. (2007). *Web technology & design*. New Age Internation
3. Jackson, J. C. (2006). *Web technologies*. Pearson India.

Web References

1. https://html.spec.whatwg.org/
2. https://www.geeksforgeeks.org/html/html-tutorial/
3. https://www.tutorialspoint.com/css/index.htm
4. https://www.w3schools.com/js/

L:: Lecture, **T::** Tutorial, **P::** Practical

CCE:: Continuous & Comprehensive Evaluation

(CCE theory includes Mid Semester Examination, Assignment, MCQ Quizzes, Seminar, Reflective Notes, Class Participation, Case Analysis and Presentation, Slip Tests (Announced/ Surpirsed), Attendance etc. or any combination of these)

PWE: Practical Work Examination

(PWE includes Laboratory Practical Work, Project Work, Viva simulation exercise work etc.)

SEE:: Semester End Evaluation

Sample Practical Exercises:

1. Develop an HTML page for personal introduction using headings, paragraphs, text formatting tags and basic HTML structure.
2. Create an HTML webpage for college information containing images, hyperlinks, lists and formatted content.
3. Develop an HTML page demonstrating ordered lists, unordered lists and definition lists for educational content presentation.
4. Create a multi-page HTML website with navigation links like Home, About, Courses and Contact pages.
5. Design and develop an HTML resume or curriculum vitae webpage using formatting elements and structured layout.
6. Create an HTML webpage for student timetable management using table elements with rowspan and colspan features.
7. Develop an HTML page for displaying a student result marksheet using nested tables and table formatting techniques.
8. Create an HTML-based online student registration form using various form controls and input types.
9. Develop an HTML feedback form containing labels, text areas, checkboxes, radio buttons and dropdown lists.
10. Create an HTML multimedia webpage integrating images, audio and video elements with media controls.
11. Develop an HTML product advertisement webpage containing multimedia content, descriptions and external links.
12. Create a semantic HTML5 webpage for blog or news layout using header, nav, section, article and footer tags.

13. Create webpages to demonstrate the implementation of inline, internal and external CSS styles.
14. Develop webpages demonstrating the use of element, class, ID, group and universal CSS selectors.
15. Design and develop a college website homepage using CSS text, font, color and background properties.
16. Create and style HTML tables using various CSS table formatting properties.
17. Develop webpages to demonstrate the CSS Box Model using margin, padding, border and border-radius properties.
18. Create horizontal and vertical navigation menus using HTML and CSS styling techniques.
19. Develop styled ordered and unordered lists using custom bullets and CSS list properties.
20. Create a responsive HTML webpage using viewport settings and relative CSS units such as %, em and rem.
21. Design and develop a responsive personal portfolio website containing profile, skills, projects and contact sections.
22. Create a modern business or startup landing page using HTML and CSS layout techniques.
23. Write JavaScript code to demonstrate variables, data types, operators and output methods such as alert() and console.log().
24. Write JavaScript code to create a basic calculator application using arithmetic operations and functions.
25. Write JavaScript code using conditional statements for grade calculation and eligibility checking.
26. Write JavaScript code demonstrating looping statements including for, while and do-while loops.
27. Write JavaScript code using user-defined functions, anonymous functions and arrow functions.
28. Write JavaScript code to perform array and string operations using methods such as push(), pop() and string functions.

29. Write JavaScript code to manipulate HTML elements dynamically using DOM methods.
30. Write JavaScript code to implement event handling using onclick, onchange, onmouseover and onsubmit events.
31. Write JavaScript code to develop a form validation system for validating required fields, email format and password rules.
32. Write JavaScript code to design an interactive image gallery or image slider using event handling and DOM concepts.
33. Write JavaScript code to create a dynamic To-Do List web application using HTML, CSS and JavaScript.