



**ITM(SLS) Baroda University**  
**School of Engineering**  
**Department of Computer Science and Engineering**

**Web Technologies: HTML, CSS, JavaScript, PHP**

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				External	Internal	External	Internal	
3	0	2	4	40	60	20	30	150

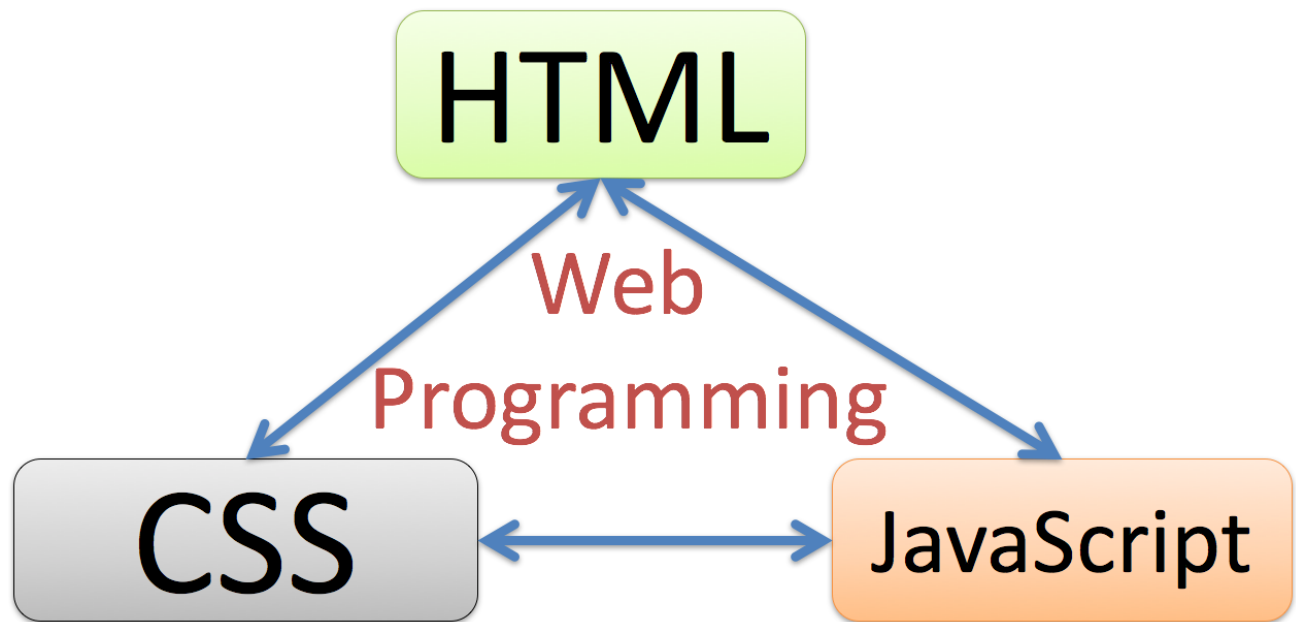
**What is Web Technology?**

Learning Web Technology is essential today because Internet has become the number one source to information, and many of the traditional software applications have become Web Applications. Web Applications have become more powerful and can fully replace desktop application in most situations.

That's why you need to know basic Web Programming, including HTML, CSS and JavaScript. It all started with Internet (1960s) and the World Wide Web - WWW (1991). The first Web Browser, Netscape, came in 1994. This was the beginning of a new era, where everything is connected on internet, the so-called Internet of Things (IoT).

**Course overview**

In this course students will start on a path toward future studies in web development and design, no matter how little experience or technical knowledge you currently have. The web is a very big place, and if you are the typical internet user, you probably visit several websites every day, whether for business, entertainment or education. But have you ever wondered how these websites actually work? How are they built? How do browsers, computers, and mobile devices interact with the web? What skills are necessary to build a website? With almost 1 billion websites now on the internet, the answers to these questions could be your first step toward a better understanding of the internet and developing a new set of internet skills.



By the end of this course you'll be able to describe the structure and functionality of the world wide web, create dynamic web pages using a combination of HTML, CSS, and JavaScript, apply essential programming language concepts when creating HTML forms, select an appropriate web hosting service, and publish your webpages for the world to see. Finally, you'll be able to develop a working model for creating your own personal or business websites in the future and be fully prepared to take the next step in a more advanced web development.

### Learning outcomes

By the end of the course students you shall be confident and equipped with all the knowledge required to design an effective web site

	Course Outcome	Bloom's Level
CO1	<b>Remember</b> the concepts of WWW including browser and HTTP protocol.	Understand
CO2	<b>Understand</b> various HTML Tags to develop user friendly web pages	Understand
CO3	Understand, analyze and build dynamic and interactive web sites	Understanding, Analyze

CO4	<b>Apply</b> CSS with its types to provide the styles to the web pages at various levels	Application
CO5	<b>Apply</b> JavaScript to develop the dynamic web pages	Analyze
CO6	Use server-side scripting with PHP to generate the web pages dynamically.	Application
CO7	Be able to write the schema for the given XML documents in both DTD and XML Schema languages	Creation
CO8	<b>Create</b> their own personal and professional websites.	Creation

### TextBooks:

Sr. No	Book Name
1	Ralph Moseley and M. T. Savaliya, “Developing Web Applications”, Wiley-India
2	Bai and Ekedhi, The Web Warrior Guide to Web Programming, 3rd Edition, Thomson, 2008
3	Web Technologies, Black Book, dreamtech Press
4	Knuckles, “Web Applications: Concepts and Real World Design”, Wiley-India
5	Developing Web Applications in PHP and AJAX, Harwani, McGrawHill
6	Internet and World Wide Web How to program, P.J. Deitel & H.M. Deitel, Pearson
7	The complete reference PHP- Steven Holzner, Tata mcGraw-Hill

### Required software

- Notepad++
- VS Code
- Codepen (Online Tool)

## Learning Resources

### TEDx Videos:

Sr. No	TEDx Video
T1	<a href="https://www.ted.com/talks/kevin_kelly_how_technology_evolves?language=en#t-1753">https://www.ted.com/talks/kevin_kelly_how_technology_evolves?language=en#t-1753</a> How technology works.- Kevin Kelly Tech enthusiast Kevin Kelly asks "What does technology want?" and discovers that its movement toward ubiquity and complexity is much like the evolution of life.
T2	<a href="https://www.youtube.com/watch?v=Va07q3HFEZQ">https://www.youtube.com/watch?v=Va07q3HFEZQ</a> – The Dark Web – Alan Pearce Alan talks about the dark web and how it can be used for worthwhile purposes.

### Other Videos:

Sr. No	About Video	Link	Topic
O1	Stanford Lecture - Ben Galbraith: Web Skills: Introduction to Web Technologies and HTML 5	<a href="https://www.youtube.com/watch?v=r4F5tY_6u70&amp;list=PLDD1386C4D784B56B&amp;index=3&amp;t=0s">https://www.youtube.com/watch?v=r4F5tY_6u70&amp;list=PLDD1386C4D784B56B&amp;index=3&amp;t=0s</a>	Introduction to web
O2	James Mickenss. Securing Web Applications <a href="#">MIT OpenCourseWare</a>	<a href="https://www.youtube.com/watch?v=WlmKwIe9z1Q">https://www.youtube.com/watch?v=WlmKwIe9z1Q</a>	Securing Web Applications
O3	Prof.I.Sengupta, Department of Computer Science & Engineering ,IIT Kharagpur On HTML	<a href="https://www.youtube.com/watch?v=QEtlWL4lWIL4">https://www.youtube.com/watch?v=QEtlWL4lWIL4</a>	HTML
O4	Introductory lecture on Basic concepts of web applications, how they work and the HTTP protocol	<a href="https://www.youtube.com/watch?v=RsQ1tFLwl_dY">https://www.youtube.com/watch?v=RsQ1tFLwl_dY</a>	HTTP and WWW
O5	Douglas Crockford: The JavaScript Programming Language Douglas Crockford explores not only the language as it is today but also how the language came to be the way it is.	<a href="https://www.youtube.com/watch?v=v2ifWcnQs6M&amp;list=PL62E185BB8577B63D">https://www.youtube.com/watch?v=v2ifWcnQs6M&amp;list=PL62E185BB8577B63D</a>	JavaScript
O6	Building Dynamic websites. Harvard OpenCourseWare. CS E-75	<a href="https://www.youtube.com/watch?v=h2Nq0qv0K8M">https://www.youtube.com/watch?v=h2Nq0qv0K8M</a>	How to create dynamic website

O7	David Malan : PHP Harvard Web Development	<a href="https://www.youtube.com/watch?v=gwUEjgbs02w&amp;list=PLTney8JqQk2oGFQONHHKDzvsChJMKEY&amp;index=2">https://www.youtube.com/watch?v=gwUEjgbs02w&amp;list=PLTney8JqQk2oGFQONHHKDzvsChJMKEY&amp;index=2</a>	PHP
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### Related MOOCs courses

Sr. No.	MOOC Courses
M1	Introduction to HTML5 by University of Michigan 4 Weeks on Coursera.
M2	Advanced Styling with Responsive Design By University of Michigan on (coursera)
M3	<a href="https://www.edx.org/professional-certificate/w3cx-front-end-web-developer">https://www.edx.org/professional-certificate/w3cx-front-end-web-developer</a>
M4	<a href="https://www.edx.org/course/javascript-introduction">https://www.edx.org/course/javascript-introduction</a>
M5	<a href="https://www.udemy.com/courses/development/web-development/">https://www.udemy.com/courses/development/web-development/</a>
M6	<a href="https://www.edx.org/course/css-basics">https://www.edx.org/course/css-basics</a>
M7	<a href="https://www.edx.org/course/programming-for-the-web-with-javascript">https://www.edx.org/course/programming-for-the-web-with-javascript</a>

**Course Outline:**

Unit No	Topic	Lab	Hours
1	<b>Introduction to WWW</b> <ul style="list-style-type: none"><li>• Concept of WWW</li><li>• Internet and WWW</li><li>• HTTP protocol: Request and Response</li><li>• Web Browser and Web Servers</li><li>• Features of Web 2.0</li><li>• Setting up Unix and Linux Web Servers</li><li>• Dynamic IP</li><li>• Concepts of effective Web Design</li><li>• Web Design Issues</li></ul>	-	<b>04</b>
2.	<b>HTML</b> <ul style="list-style-type: none"><li>• Basics of HTML</li><li>• Formatting and Fonts</li><li>• Color and Hyperlinks</li><li>• List, Table, Images, Forms</li><li>• HTML5 New Elements</li><li>• HTML5 : Drag/Drop, Video, Audio, Input types</li><li>• XHTML: Meta Tags</li></ul>	P1, P2, P3, P4, P5	<b>07</b>
3.	<b>CSS</b> <ul style="list-style-type: none"><li>• Need for CSS</li><li>• Introduction to CSS</li><li>• Syntax and Structure</li><li>• Background images, Colors and properties</li><li>• Manipulation of Texts: Font, Border and Boxes</li><li>• CSS positioning</li><li>• CSS2, Overview and Features of CSS3</li></ul>	P1, P2,P3,P4,P5	<b>04</b>
4.	<b>Introduction to JavaScript and JQuery</b> <ul style="list-style-type: none"><li>• Client side Scripting with JavaScript: Variables, conditions, Loops, Functions, Pop up Boxes</li><li>• Advance JavaScript : JavaScript and objects,</li><li>• DOM</li><li>• Forms and Validations</li><li>• DHTML: Combining HTML , CSS and JavaScript</li></ul>	P6,P7,P8,P9,P10,P11,P16	<b>15</b>

	<ul style="list-style-type: none"> <li>• Events and Buttons</li> <li>• AJAX: Introduction.</li> <li>• AJAX Based WebApplications</li> <li>• JQuery: Introduction</li> </ul>		
5	XML <ul style="list-style-type: none"> <li>• Introduction to XML</li> <li>• XML Key Components</li> <li>• DTD and schemas</li> <li>• Transforming XML using XSL and XSLT</li> </ul>	P12, p13	08
6	PHP <ul style="list-style-type: none"> <li>• Introduction to Server Side Scripting</li> <li>• Introduction and Basic Syntax of PHP</li> <li>• String Processing and Regular expression</li> <li>• Web Development Frameworks</li> </ul>	P14, P15	10

#### Lab Experiments:

<b>P1</b>	<b>Creating a Food Drive Web Page</b> <i>Problem:</i> You did volunteer work for the Community Food Drive in your city. You would like to recruit other friends to volunteer for community service. You have been asked to create a Web page to display information about why you choose to volunteer and let people know how they also can help
<b>P2.</b>	<b>Creating a Web Page with Links:</b> Create a Web page demonstrating your knowledge of link targets
<b>P3</b>	<i>Problem:</i> Your Communications instructor has asked each student in the class to create a two-page Web site to help students in the class get to know more about the area in which you are majoring in school. The first Web page is a home page that includes basic information about your major. If you can, add an image related to your chosen field somewhere on the Web page. Add a link to the second Web page. The second Web page includes a paragraph of text and numbered lists with links.
<b>P4</b>	<b>Creating a School Bookstore Survey</b> <i>Problem:</i> The staff of the school bookstore wants to survey students about their book-buying habits to determine where they purchase their books. The staff has asked you to create a Web page form that contains the questions (create a form containing the basis information like name, address, city, zip, Email id ask the questions containing the survey.
<b>P5</b>	<b>Frames</b>

	<b>Creating a Two-Frame Structure for a Soccer Web Site</b> Problem: The Director of the Schererville Soccer league has asked you to create a new Web site with information on the upcoming soccer season. After reviewing the content with the Director, you suggest using a two-frame structure with two horizontal frames. The top frame will display a header and menu bar for navigation, while the bottom frame will display schedules, standings, rules, and other information.
<b>P6</b>	Write a JavaScript program for performing Arithmetic Operations
<b>P7</b>	Text growing and shrinking in Java script
<b>P8</b>	Design HTML form which includes two fields username and password. Write JavaScript code to show and hide password.
<b>P9</b>	Design a login form using HTML & JavaScript with following validations on username and password fields: Also, password length must be of 6 to 12 characters. Username should not start with _, @ or number and both the fields should not be blank.
<b>P10</b>	Write JS to demonstrate various built-in string functions Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems: a. Parameter: A string Output: The position in the string of the left-most vowel b. Parameter: A number Output: The number with its digits in the reverse order
<b>P11</b>	Write JS to search an element in an array of size N.
<b>P12</b>	Create an XML document that contains 10 users information. Write a java program, which takes user id as input and returns the user details by taking the user information from XML document using a)DOM parser b)SAX parser
<b>P13</b>	Introduction <b>XSLT</b> : Prepare a XSL file to transform Students data from XML to tabular form in XHTML.
<b>P14</b>	Write a PHP program named states.py that declares a variable states with value "Mississippi Alabama Texas Massachusetts Kansas". write a PHP program that does the following: a. Search for a word in variable states that ends in xas. Store this word in element 0 of a list named statesList. b. Search for a word in states that begins with k and ends in s. Perform a caseinsensitive comparison. [Note: Passing re.Ias a second parameter to method compile performs a case-insensitive comparison.] Store this word in element1 of statesList. c. Search for a word in states that begins with M and ends in s. Store this word in element 2 of the list. d. Search for a word in states that ends in a. Store this word in element 3 of the list.
<b>P15</b>	Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields.
<b>P16</b>	Using AJAX retrieve data from a TXT file and display it. Create XSL file to convert XML file into XHTML file



