Nirma University

Institute of Technology

Open Elective

Course Policy Template

B. Tech Semester - VII **Academic Year:** 2023-24

Course Code & Name	**:**	2CSOE77 Web Technology
Credit Details	**:**	Lecture-2, Tutorial-0, Practicals-2 **Credits-3**
Course Coordinator	**:**	Prof. Malaram Kumhar
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Course Faculty	**:**	Prof. Malaram Kumhar Visiting Hours: 9.00 a.m. to 04.00 p.m.

1. Introduction to Course

1.1 Importance of the course

In today's environment, lots of information is projected using web pages. Introducing this course, students are able to learn basic concepts of website development using various technologies like HTML, CSS, JavaScript &JSON and they can design the website by their own.

1.2 Objective of the Course

- ✓ The main focus of offering this course is to teach fundamentals for web designing using HTML, CSS, JavaScript & JSON and to make them aware of various web technologies.
- ✓ This course will provide platform for students to design static as well as interactive web pages incorporating validation techniques.

1.3 Pre-requisite:

No prior knowledge required.

2. Course Learning Outcomes (CLO)

CLOs are clear statements of the expectations for student achievements in the course.

After successful completion of this course, student will be able to:

1. Understand the architecture of the internet and web technology

2. Design an efficient web application
3. Use programming language to develop a web application.

3. Syllabus

Syllabus:	Teaching Hours
Unit I **Introduction to internet protocols and web servers:** Internet Protocol Model overview, Internet Protocol, Web servers, IIS Configurations and settings, Apache Configuration	**02**
Unit II **HTML**: HTML Documents, HTML Structure tags, HTML Block level tags, HTML Text level tags, Different types of Lists, Nesting of lists, Linking HTML Documents, Frames, tables and forms	**08**
Unit III **Cascaded Style Sheets:** Different approaches to style sheets, using multiple approaches, linking to style information in separate file, setting up style information using inline, internal and external style sheet	**08**
Unit IV **JavaScript:** JavaScript syntax, variables and their types, JavaScript operators, arrays and array methods, control statements, built-in objects in JavaScript, Array, String, validation using JavaScript	**08**
Unit V **Introduction to JSON:** Use of JSON data structures, JSON object, Collection of name-value pairs, ordered list of values	**04**

3.1. Self-Study

The self-study components of the syllabus will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study content.

Topics/content for self-study are as listed below:

1. Cascaded Style Sheets: Padding properties
2. JavaScript: Number data type and functions, Math properties and functions
3. JavaScript: Date Object, Events

Students are expected to study above mentioned topics on their own. These topics will not be taught in the classroom. Students should refer to books available in the library for the same.

3.2. References

1. Deitel Deitel Nieto, Internet and World Wide Web: How To Program, Person
2. Scott Parker, The Web Designer's 101 Most Important Decisions Professional Secrets for a Winning Website, Adams Media
3. Kogent Learning Solutions Inc., Html5 Black Book: Covers CSS3, Javascript, XML, XHTML, Ajax, Php and Jquery, Dreamtech Press
4. Jon Duckett, Beginning Web Programming with Html, XHTML and CSS, Wiley India Pvt Ltd.

Note: The latest edition of books should be referred.

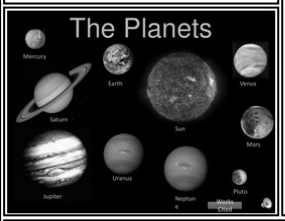
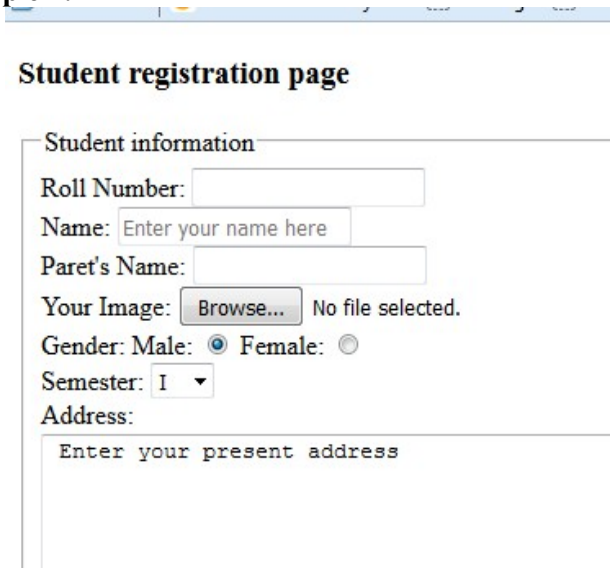
4. Laboratory details

Laboratory experiments/ exercises should be completed as per the given schedule. It is expected that a student does the same with full understanding of the concept, procedure and application involved.

Laboratory work will be based on above syllabus with following number experiments to be performed.

Sr. No.	Week No.	List of Experiments	Mapped CLO
1	1	Study of Internet Protocol Model, Internet Protocol and Web servers.	1
2	2-3	**HTML Concepts:** A. Design a home page which will display your personal information i.e. Resume. B. Develop a web page to demonstrate various list types in HTML.	2
3	4-5	A. Create a HTML page which contains the two frames. One frame contains navigation links and second frame contains the details about chapters. Once we clicked on navigation link then it jumps on specific chapter section in second frame. Refer the figure for more detail. Chapter 1 Chapter 2 Chapter 3 Chapter 4 Chapter 10 **Chapter 3** This chapter explains ..... **Chapter 4** This chapter explains ..... **Chapter 5** This chapter explains	2

<table>
<tr><td></td><td></td><td>B. Demonstrate an image map for country India in HTML. Once we click on specific state, it will open another page which one the map of the state.</td><td></td></tr>
<tr><td>4</td><td>6-7</td><td>Design web pages for the followings:

A. Table as given below:
Caption: Table Example
<table><tr><td colspan="3">Header-1</td><td rowspan="2">RIGHT CORNER OF TABLE</td></tr><tr><td colspan="2">Header-2</td><td>Header-3</td></tr><tr><td>1. Lists can be table data
2. Images can be table data</td><td rowspan="2">Two Tall</td><td colspan="2">Two columns merged</td></tr><tr><td>  </td><td>Data here</td><td>Caption: Nested Table<table><tr><td>Header</td></tr><tr><td>Cell data</td></tr></table></td><td>Multiple lines:
Line 1
Line 2
Line 3</td></tr><tr><td colspan="4">Table Footer</td></tr></table>
B. Create registration form of your choice. Use appropriate form tags.
Consider the sample examples given below:
Sample 1:
 
[Figure: Student information]
<table><tr><td>Field Name</td><td>Necessary data validation conditions</td></tr><tr><td>Roll number</td><td>Use implicit label for Roll number field</td></tr><tr><td>Your Image</td><td>Only accept the image files.</td></tr></table></td><td>2</td></tr>
</table>

		Semester: Use select tag. Address: Use textarea and limit the number of columns to 30 & perform physical wrap on text Range: Use range tag. Range minimum value is 20 and maximum value is 65. When user changes the value using range tag, the output must be changed in output tag.		

Sample 2:

Customer Registration Page which contains following fields:

Sr. No.	Field name	Necessary data validation conditions
1.	Customer ID	Use implicit label
2.	Name	User can enter maximum 60 characters
3.	Age	User can able to enter only numeric value from 18 to 80
4.	Gender: Male and Female	Use radio buttons and initially option male is selected
5.	Customer Account type: Basic and Privileged	Use input tag list attribute
6.	Photo	Only accept image files
7.	Email	Use appropriate input tag type attribute
8.	Password	
9.	Confirm Password	
10.	Homepage URL	Use appropriate input tag type attribute
11.	Reset Button	
12.	Submit button	

Do not use JavaScript to validate for any of the field.

5	8	**CSS Concepts:** Design a web Pages that demonstrate following properties: A. Font properties B. Background properties	2
6	9	Demonstrate Radius and Border properties in CSS.	2
7	10-11	Demonstrate Margin, Padding and Outline properties in CSS.	2
8	12	**JavaScript Concepts:** A. Write a JavaScript that takes an integer value and display the number with its digits in reversed order. B. Write a JavaScript that read a set of N single digits and convert them into single decimal integer. For example, the script should convert the set of 4 digits {5,2,1,7} to decimal integer 5217.	3

9	13-14	A. Create a JavaScript that merge two arrays without duplicating elements. B. Develop a JavaScript function to humanized number (Formats a number to a human-readable string.) with the correct suffix such as 1st, 2nd, 3rd or 4th up to number 10. (Hint: If user enter 8 than output will be 8th. If user enter 1 than output should be 1st) C. Design a shopping website that provides information about various products to the visitor. A visitor can register to the shopping website if he wishes to purchase some item(s) now or in future. The registration form should collect necessary information of a visitor in order to deliver the product if order placed. Moreover, design a web page to place orders by the registered user. Validate all the fields of the registration form and order form.	3
10	15	Write a JavaScript that access the data from a given JSON file.	3

5. Tutorials/ Term assignments/ Innovative assignments/ Term paper *(as applicable)* details

- Innovative Assignment:
  - ✓ Student has to designed the website:
    - Student has to design web site using HTML, CSS & JavaScript and JSON concepts.
    - Group (Max 3 Students per group)

6. Assessment Policy

6.1 Component wise Continuous Evaluation (CE), Laboratory and Project Work (LPW) & Semester End Examination (SEE) weightage

Assessment scheme	***CE***			***LPW***		***SEE***
Component weightage	*0.4*			*0.2*		*0.4*
	Class Test 35%	*Sessional Exam 35%*	*Special Assignment 30%*	*Continuous Evaluation 75%*	*Viva Voce 25%*	

6.2 Assessment Policy for Continuous Evaluation (CE)

Assessment of Continuous Evaluation comprises of three components.

1. Class test will be conducted as per academic calendar. It will be conducted online/ offline and covers the 35% of total CE component weightage.
2. Sessional exam will be conducted as per academic calendar. It will be conducted offline and covers the 35% of total CE component weightage.
3. Special assignments covers the 30% of total CE component weightage

6.3 Assessment Policy for Laboratory and Project Work (LPW)

Assessment of Laboratory and Project Work comprises of two components.

1. Continuous assessment for laboratory experiments will be conducted. There will be 10 experiments, each carrying weightage of 10 marks. At the end of the course total marks obtained out of 100 will be converted according to weightage assigned. Assessment of Experiment will be carried out based on parameters various tags utilization, overall design of web page and logic (in case of JavaScript& JSON) and timely submission of practical.
2. A Viva voce examination for LPW component will be conducted as per academic calendar. It will carry a weightage of 25 marks.

6.4 Assessment Policy for Semester End Examination (SEE)

A written examination of 3 hours duration will be conducted for the course as per academic calendar. It will carry 100 marks and marks obtained out of 100 will be converted as per weightage assigned.

7. Lesson Plan

Lecture No.	Topic	Mapped CLO
Introduction to internet protocols and web servers		
1.	Overview of the course, Discussion on Course Policy, Course Website and Blog, Importance of the course, Evaluation, Linkages of the course with other course/'s and Professional relevance Internet Protocol Model overview, Internet Protocol	1
2.	Web servers, IIS Configurations and settings, Apache Configuration	1
Introduction to various HTML tags and concepts		
3.	HTML concepts • A brief history • What is HTML? • The anatomy of a Web Site • HTML Tags • Create and view HTML document • Basic of HTML elements	2

	• Headings and Paragraph Tags	
4.	• Basic of HTML attributes • HTML Text Formatting • Fonts	2
5.	• Lists • Background and text color • Color values	2
6.	• Links • Image handling • Creating Image Map	2
7.	• Tables	2
8.	• HTML Frames • Inline frames	2
9.	• HTML Forms tags and attributes ✓ Input tag ✓ Form's Action Attribute and Submit Button ✓ Place Holder ✓ Textarea	2
10.	• Various formxxx attributes like formaction, formmethod, …	2
Cascaded Style Sheets		
11.	• Introduction to CSS: what, why and how • Types of CSS	2
12.	• Font Properties • CSS Selectors	2
13.	• Background color • Background Image	2
14.	• Background-attachment, Background-origin, Background-position, Background-size properties	2
15.	• Various Border Properties • Border-image-xxx properties • Box-shadow	2
16.	• Dimension properties • CSS Box Model • Margins properties • Padding properties	2
17.	• Outline properties • List properties • Layout properties	2
18.	• Table properties • Text properties	2
JavaScript		
19.	• Introduction • Types of JavaScript • How to write content on webpage • JavaScript Syntax • Variables	2
20.	• Operators	2

	• Data types • Introduction to Array	
21.	• Array methods/property • Object	2
22.	• Associative Arrays • typeof operator • Undefined v/s Null • Introduction to String	2
23.	• String Property and Functions • Number data type and functions	2
24.	• Math properties and functions • Date Object • Switch case, Loops • Type conversion • Debugging • Hoisting • Scope	3
25.	• User defined functions • Errors	3
26.	• Popup box • Validation • Events	3
Introduction to JSON		
27.	Use of JSON data structures	2
28.	JSON object	2
29.	Collection of name-value pairs	2
30.	Ordered list of values	2

8. Mapping of Session Learning Outcomes (SLO) with Course Learning Outcomes (CLO)

Session No.	Session Learning Outcomes: After successful completion of the session, student will be able to	CLO
Introduction to internet protocols and web servers		
1.	learn the basic of Internet Protocol Model overview and Internet Protocol.	1
2.	learn the Web servers, IIS Configurations and settings, Apache Configuration	1
Introduction to various HTML tags and concepts		
3.	explain and relate basic concepts of web building and HTML	2
4.	describe basic of HTML attribute and text formatting concepts	2
5.	classify various types of lists and apply color attributes in web page	2
6.	develop the linked web pages incorporating image handling	2
7.	design web page which includes various table tags	2
8.	apply column group in a table and learn frame concepts	2
9.	design web page which includes various form tags and its' attributes	2

10.	Develop web page which includes various form tags with attributes and learn HTML 5 concepts	2
Cascaded Style Sheets		
11.	explain basics of CSS and list the types of CSS	2
12.	explore various font properties including various CSS selector	2
13.	implement background color and image properties in a web page	2
14.	utilize various background properties like Background-attachment, Background-origin, Background-position, Background-size properties for designing web page	2
15.	apply border properties on HTML elements	2
16.	build web page incorporating border-image-xxx and box-shadow properties	2
17.	discover CSS box model and identify the use of dimension and margin properties	2
18.	identify behavioral change of elements due to display, outline and list properties, table properties	2
JavaScript		
19.	classify types of JavaScript and determine basics of JavaScript	2
20.	learn JavaScript basic concepts operators, data types and array	2
21.	compare array and object as well as learn array methods	2
22.	justify use of typeof operator and understand basics of string	2
23.	discover various string property and functions	2
24.	learn control statements and hoisting	3
25.	create JavaScript user defined functions and error handling programs	3
26.	explain validation concepts	3
Introduction to JSON		
27.	Explain the use of JSON data structures	2
28.	learn JSON object	2
29.	understand the concepts collection of name-value pairs	2
30.	learn the ordered list of values	2

9. Teaching-learning methodology

1. Lectures: Primarily Chalk and Black board, Power Point Presentations (PPTs) and Demonstration of concepts through web pages will be used to conduct the course. However, where required, Video Lectures, Animations etc. will be used to enhance the teaching-learning process.
2. Laboratory: Explanation of Experiment to be performed along with co-relation with theory will be given. At the end of each session assessment will be carried out based on parameters various tags utilization, overall design of web page and logic (in case of JavaScript) and timely submission of practical .

10. Active learning techniques

Active learning is a method of learning in which students are actively or experientially involved in the learning process. Following active learning techniques will be adopted for the course.

1. Recall, Summarize, Question, Connect, and Comment: At the beginning of class, students are asked to recall and list the most important points from the previous class. They then summarize these points in sentences. Next students write one questions from the previous material that they wanted answered. Fourth, they are instructed to make one connection between what they learned in the previous class and any of the classes before that. Finally, they are asked to comment on how confident they felt.
2. Flipped Class-room: In the flipped classroom, instructors assign video lectures or reading material as homework, and use class time for active learning exercises and direct engagement with students.

11. Course Material

Course material is uploaded on the LMS.

- Course Policy
- Lecture Notes
- Books / Reference Books / NPTEL video lectures
- Assignments, Lab Manuals
- Question bank
- Web-links, Blogs, Video Lectures, Journals
- Software's
- Advanced topics

12. Course Learning Outcome Attainment

Following means will be used to assess attainment of course learning outcomes.

- Use of formal evaluation components of continuous evaluation, laboratory work, semester end examination
- Informal feedback during course conduction

13. Academic Integrity Statement

Students are expected to carry out assigned work under Continuous Evaluation (CE) component and LPW component independently. Copying in any form is not acceptable and will invite strict disciplinary action. Evaluation of corresponding component will be affected proportionately in such cases. Turnitin software will be used to check plagiarism wherever applicable. Academic integrity is expected from students in all components of course assessment.