Bachelor of Computer Applications (BCA)

HTML Programming Lab with Projects
(DBCASE208P24)

Self-Learning Material
(SEM -II)

Jaipur National University
Centre for Distance and Online Education

Jaipur National University

Course Code: DBCASE208P24
HTML Programming Lab

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EXPERT COMMITTEE

Prof. Sunil Gupta
(HOD, Computer and Systems Sciences, JNU Jaipur)

Dr. Deepak Shekhawat
(Computer and Systems Sciences, JNU Jaipur)

Dr. Shalini Rajawat
(Computer and Systems Sciences, JNU Jaipur)

COURSE COORDINATOR

Swarnima Gupta, Asst. Prof.
(Computer and Systems Sciences, JNU Jaipur)

UNIT PREPARATION

Unit Writer(s)	Assisting & Proofreading	Unit Editor
Swarnima Gupta, Asst. Prof. (Computer and Systems Sciences, JNU Jaipur)	Mr. Kuldeep Sharma (Computer and Systems Sciences, JNU Jaipur)	Dr. Satish Pandey (Computer and Systems Sciences, JNU Jaipur)

Secretarial Assistance

Mr. Mukesh Sharma

COURSE INTRODUCTION

"Clean code always looks like it was written by someone who cares."
                                                    - Robert C. Martin

Welcome to the "HTML Fundamentals" course, a key stepping stone in the world of web development. This course is crafted to introduce you to HTML, the foundational language used to create and structure content on the web. As the backbone of any webpage, understanding HTML is essential for anyone looking to delve into web design and development.

HTML, which stands for Hypertext Markup Language, is the standard language for creating web pages and web applications. It provides the basic structure of a webpage by using a series of elements or tags to define and organize content. This course will guide you through the core components of HTML, offering a practical approach to learning how to construct and manage web content effectively.

The course begins with an introduction to the fundamental concepts of HTML, including the structure and syntax of the language. You'll learn about HTML elements, which consist of opening and closing tags that delineate different types of content such as headings, paragraphs, and lists. Understanding these basic elements is crucial as they form the building blocks of any web page.

As you progress, you'll explore more advanced HTML elements and attributes. Topics include creating links, adding images, and incorporating multimedia such as audio and video. You'll also learn how to use forms to collect user input and how to format text and layout using HTML tags. These skills are vital for creating interactive and visually appealing websites.

A key component of this course is learning how to ensure your HTML code is both valid and accessible. You'll gain insights into best practices for writing clean, semantic HTML code that adheres to web standards. This includes understanding the importance of semantic HTML tags, which improve both the readability of your code and the accessibility of your web content for users with disabilities.

Throughout the course, you'll engage in practical exercises and projects that allow you to apply your knowledge in real-world scenarios. By building simple web pages and gradually incorporating more complex elements, you'll gain hands-on experience that reinforces your understanding of HTML.

By the end of the course, you'll have a solid grasp of HTML and its role in web development. You'll be equipped with the skills to create well-structured, accessible web pages and understand how HTML fits into the broader context of web technologies.

Course Outcomes:

At the completion of the course, a student will be able to:

After completion of the course, students will be able to:

1. Students learn about the concept of web application creation using HTML.

2. Different formatting options used while creating the web pages.

3. Build a responsive web site using HTML5 and CSS3.

4. Understand the role of HTML and CSS in effective web development along with its uses.

5. Develop an effective web application using HTML and CSS as per the projects.

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1. Basic HTML Document Structure

Objective: Understand and create a simple HTML document structure. **Description:** This assignment introduces the basic structure of an HTML document, including the essential sections and elements required in every webpage. **Requirements:**

- Define the document type and specify the HTML version.

- Set the language of the document.

- Include character set declaration for content.

- Create the document's head, title, and body sections.

- Insert a header with a page title and a paragraph introducing the purpose of the page. **Hint:** Begin with the **<!DOCTYPE html>** declaration to define the HTML version, and remember to set the **lang** attribute in the opening HTML tag to specify the language, such as **en** for English.

2. Formatting Text in HTML

Objective: Learn to format text using different HTML elements. **Description:** This task will help students understand the use of various text formatting tags in HTML to enhance the readability and presentation of web content. **Requirements:**

- Use at least three different header tags.

- Employ bold, italic, and underline tags to emphasize text.

- Create a blockquote.

- Implement a horizontal rule.

- Include a preformatted text block. **Hint:** Explore the use of **<h1>**, **<h2>**, **<strong>**, **<em>**, **<u>**, **<blockquote>**, **<hr>**, and **<pre>** tags to format the content.

3. Creating Lists

Objective: Master the creation of ordered, unordered, and description lists in HTML.
Description: Lists are crucial for organizing information on web pages. This assignment covers three types of lists. **Requirements:**

- Create an unordered list for a shopping list.

- Design an ordered list for a recipe's steps.

- Utilize a description list to define HTML, CSS, and JavaScript. **Hint:** Use **\<ul\>**, **\<ol\>**, and **\<dl\>** along with their respective child elements to structure different types of lists.

4. Incorporating Images and Links

Objective: Implement images and hyperlinks into an HTML document. **Description:** Images and links are fundamental to web navigation and aesthetics. This assignment involves adding both to a webpage. **Requirements:**

- Insert at least three images with alternative text descriptions.

- Create links to three different websites, opening in new tabs.

- Link one image to another webpage. **Hint:** Use the **\<img\>** tag for images, and don't forget the **alt** attribute. For links, the **\<a\>** tag is essential, and you can use the **target="_blank"** attribute to open links in a new tab.

5. Building a Simple Navigation Bar

Objective: Develop a basic navigation bar using HTML. **Description:** A navigation bar is a user interface element that aids in site navigation. This task focuses on creating a horizontal navigation bar. **Requirements:**

- Include links to four different sections: Home, About, Services, and Contact.

- Style the navigation bar to appear horizontal. **Hint:** Utilize **\<nav\>** and **\<ul\>** elements to structure the bar, with **\<li\>** and **\<a\>** tags for items and links. Use CSS (if introduced) for basic styling.

6. HTML Table Creation

Objective: Create a table to display data clearly. **Description:** Tables are essential for presenting data in a structured format. This assignment will guide you through creating an HTML table. **Requirements:**

- Construct a table with at least four columns and four rows.

- Include headers for each column.

- Insert at least one row of data. **Hint:** Use the **<table>**, **<tr>**, **<th>**, and **<td>** tags to build your table. Remember to use **<thead>** and **<tbody>** to differentiate between the header and body of the table.

7. Creating Forms in HTML

Objective: Develop a form to collect user input. **Description:** Forms are vital for interactive websites, allowing users to submit information. This assignment involves creating a basic form. **Requirements:**

- Design a form that includes text fields, a number field, and a submit button.

- Include labels for each field.

- Use a dropdown menu for selecting gender. **Hint:** Familiarize yourself with the **<form>**, **<input>**, **<label>**, and **<select>** elements. Ensure each input has an associated label for accessibility.

8. Embedding Multimedia

Objective: Embed video and audio into an HTML document. **Description:** Multimedia enriches user experience on websites. This task will focus on embedding video and audio clips. **Requirements:**

- Embed one video and one audio file into the webpage.

- Ensure controls are available for both media types. **Hint:** Use the **<video>** and **<audio>** tags, and make sure to include the **controls** attribute so users can play, pause, and adjust volume.

9. Implementing Iframes

Objective: Use iframes to embed an external webpage within your HTML document.
Description: Iframes are used to embed another HTML document within the current page. This assignment helps understand how to seamlessly integrate external content.
Requirements:

- Embed a Google Maps location of your choice using an iframe.

- Ensure the iframe is properly sized to fit your layout. **Hint:** The **<iframe>** tag is key here. Use the **src** attribute to specify the URL of the content you wish to embed, and adjust the width and height to fit your design.

10. HTML5 Semantic Elements

Objective: Explore and implement various HTML5 semantic elements. **Description:** HTML5 introduced several semantic elements that provide meaningful structure to web content. This assignment encourages the use of these elements to enhance the outline and accessibility of a webpage. **Requirements:**

- Use at least five different HTML5 semantic elements such as **<article>**, **<section>**, **<aside>**, **<header>**, **<footer>**, etc.

- Describe the purpose of each used element in comments. **Hint:** Think about the structure of a typical webpage and how these elements can be used to logically divide the content into digestible sections.

11. Creating a Contact Form

Objective: Design a detailed contact form for a business website. **Description:** This assignment focuses on creating a user-friendly contact form that could be used for gathering information from visitors. **Requirements:**

- Include fields for name, email, phone number, and a message.

- Add a dropdown menu for the subject of the inquiry.

- Implement radio buttons for contact preferences (e.g., Email, Phone).

- Use a submit button. **Hint:** Use the **<form>** element to wrap your inputs, and ensure each input field is paired with a **<label>** for accessibility. Consider using the **placeholder** attribute to provide examples of the input format required.

12. Multi-column Layout using HTML

Objective: Create a webpage layout with multiple columns using basic HTML. **Description:** This task will help you practice structuring content in a multi-column format using HTML. **Requirements:**

- Create a three-column layout.

- Each column should contain distinct content: such as a welcome message, a small photo gallery, and a quick contact form. **Hint:** You might need to use **<div>** tags to separate each column. To simulate a layout, use inline CSS (if covered) to style the divs with different widths and float properties.

13. Interactive Quiz Page

Objective: Build a simple interactive quiz page with HTML. **Description:** This assignment will guide students through creating a quiz that could be used for educational purposes or as a fun activity on a website. **Requirements:**

- The quiz should contain at least five questions.

- Use checkboxes for answers with multiple correct options and radio buttons for questions with only one correct answer. **Hint:** Organize each question in a separate section, and remember to group radio buttons using the **name** attribute so that only one can be selected at a time.

14. Event Schedule Page

Objective: Design a webpage displaying an event schedule. **Description:** This task involves creating an HTML document that clearly lists events, times, and descriptions in a structured format. **Requirements:**

- Display a list of at least five events with their corresponding times and brief descriptions.

- Include a heading for the date and another for the location. **Hint:** Use the **<table>** element to organize the schedule neatly. Each event can be a row in the table, with columns for time, event name, and description.

15. Restaurant Menu

Objective: Create a digital menu for a restaurant using HTML. **Description:** This assignment helps in designing a structured and appealing menu for a restaurant, showcasing various categories and dishes. **Requirements:**

- Include sections for at least three types of dishes (e.g., appetizers, mains, desserts).

- List at least three items under each category with descriptions and prices. **Hint:** Consider using the **<dl>** (description list) element where each dish name is a **<dt>** and its description and price are **<dd>**.

16. Movie Review Page

Objective: Construct a webpage dedicated to reviewing movies. **Description:** This task will guide students through creating a webpage where they can post movie reviews, including star ratings and text evaluations. **Requirements:**

- Display at least three movie titles, each with an accompanying image and a brief review.

- Include a star rating out of five for each movie. **Hint:** Use HTML for structure and simple CSS (if applicable) for styling. For star ratings, consider using Unicode star characters or simple images.

17. Daily News Section

Objective: Develop a section of a webpage dedicated to daily news updates. **Description:** This assignment focuses on creating a section where daily news headlines and brief summaries can be displayed. **Requirements:**

- List at least five news headlines with a two-sentence summary for each.

- Include a link to read more on each story. **Hint:** Utilize **<article>** tags for each news item and **<a>** tags for the "read more" links. Structure each article with a headline and a summary.

18. Portfolio Page

Objective: Create a simple portfolio page for a web developer. **Description:** This task involves building a portfolio webpage that showcases a developer's projects and skills. **Requirements:**

- Include a brief bio, a list of skills, and at least three project showcases.

- Each project showcase should have a project title, a short description, and a thumbnail image. **Hint:** Use **<section>** for each major area (bio, skills, projects). Use **<figure>** and **<figcaption>** for project thumbnails and descriptions.

19. Product Landing Page

Objective: Design a landing page for a new product. **Description:** This assignment helps in crafting a compelling landing page for marketing a specific product. **Requirements:**

- Feature the product name, a slogan, and a persuasive introduction.

- Include sections for product benefits, testimonials, and a call to action (such as a sign-up form). **Hint:** Structure your content to draw readers in, using headings and strategically placed calls to action. Consider using **<section>** for each part of your page content.

20. FAQ Section for a Website

Objective: Implement an FAQ section for a website. **Description:** This task involves creating a Frequently Asked Questions (FAQ) section that provides answers to common questions in a clear and organized manner. **Requirements:**

- List at least five questions with their answers.

- Organize the questions and answers in a readable format. **Hint:** Use the **<dl>** element with **<dt>** for the question and **<dd>** for the answer, providing a clear and structured presentation.