Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Diploma Engineering College
Semester-5 (Diploma)

Subject: Web Development-DETCE15215

Type of course: Major (Core)

Prerequisite: Basic knowledge of HTML, CSS, Problem-solving skills and Web design fundamentals.

Rationale:

Through web programming, developers enable real-time, interactive digital experiences that drive innovation in industries like e-commerce, education, and media. It merges creativity and technology to build websites that meet users' needs across devices, fostering accessibility, and delivering content globally while advancing digital transformation and connectivity in modern society.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
				Theory Marks		Practical Marks		CA	
CI	T	P	C	ESE	MSE	V	P	ALA	
3	0	2	4	60	30	10	20	30	150

Legends: CI-ClassRoom Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Sr. No	Course Content	Hrs.	% Weightage
1	**Introduction of Web Development and Internet Fundamentals:** How the Internet Works: Networking Basics, The Evolution of the World Wide Web and Web 2.0, HTTP: HTTP Protocol Methods and Headers and Status Codes. Web Security Essentials and CORS in Web Development, SEO Basics and Web Design	04	10%

	Principles, Addressing Common Web Design Issues and Structuring Navigation.		
2	**HTML and CSS Essentials for Modern Web Design:** **HTML:** HTML page structure, formatting tags, tables, links, images, meta tags for SEO, frames, form tags, and multimedia. Emphasis is placed on HTML5 for form validation and SEO. **CSS:** Purpose and Importance of CSS, Basic CSS Syntax and Structure, Backgrounds and Colors, Fonts and Text Manipulation, Borders, Margins, and Padding, Lists and Styling, CSS Animations and Tooltips, Working with Gradients, Flexbox Layout Techniques, Responsive Design Principles and Media Queries, Wildcard Selectors: (*, ^, $), Opacity, Shadow Effects, Styling images, Transition, Transformations, Animation Pseudo-Classes and Pseudo-Elements.	12	25%
3	**Interactive Web Development with JavaScript and jQuery:** Overview of JavaScript and its Role in Web Development, Syntax and Structure of JavaScript, Internal, Embedded, and External JavaScript, Data Types and Variables, Working with Arrays, Understanding Functions and Function Expressions, Control Structures: Conditions and Loops, Utilizing Pop-up Boxes: Alert, Prompt, and Confirm, Event Handling in JavaScript, Implementing Callbacks and Functions as Arguments, Exploring the Document Object Model (DOM), JavaScript Inbuilt Functions, Validating User Input with JavaScript, Introduction to Regular Expressions, Introduction to jQuery and its Importance, jQuery Syntax and Selectors, Handling Events and Effects in jQuery.	12	25%
4	**Server-Side Scripting with PHP: A Comprehensive Introduction:** Overview of PHP and its Role in Web Development, PHP Syntax and Configuration, Variables and Constants, Data Types in PHP Operators: Arithmetic, Logical, Assignment, and Bitwise, Flow Control Statements: Simple If, If-Else, Else-If Clause, Switch Statements Looping Constructs: While, Do-While, For, and Break Statements, Understanding PHP Arrays, String Manipulation and Functions, Handling File Uploads, Working with Dates and Time zones, Using Regular Expressions for Pattern Matching, Exception Handling in PHP.	07	15%
5	**Effective Session Management in Web Applications:** Understanding Query Strings in URLs, How to Use Query Strings for Data Passing, Limitations and Security Implications. Purpose and Functionality of Hidden Fields, Syntax for Creating Hidden Fields in HTML, Submitting Hidden Fields: How Data is Sent to the Server. Introduction to Cookies and Their Purpose, Creating, Reading, and Managing Cookies. Understanding Sessions and	06	15%

	Their Lifecycle, Creating and Managing Sessions in Web Applications, Comparing Sessions to Cookies.		
6	**Database Integration and CRUD Operations with PHP:** Overview of Databases and MySQL, Understanding MySQL Database Structure, Connecting to a MySQL Database Using MySQLi, CRUD Operations in PHP, Introduction to Object-Oriented Programming (OOP) in PHP, Implementing OOP Concepts for Database Access.	04	10%

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	**Typographic Excellence: Designing Readable and Captivating Web Texts** In this activity, Students will create a blog-style web page focused on typography, showcasing various font families, sizes, and text manipulation techniques using CSS. The project should demonstrate good readability practices. They will submit the code and a screenshot of the final design on the GMIU Web Portal.The project must be submitted individually.	10
2	**Creative Animation Challenge** In this activity, Students have to prepare animation effects using Java Script as per the instruction given by subject faculty. Upload solution (code) and output (animation screenshot) on GMIU Web Portal.The project must be submitted individually.	10
3	**CRUD Connect: Developing a Seamless Data Management Experience:** In this activity, Students will design a simple CRUD (Create, Read, Update, Delete) application using PHP and MySQL. They will implement all four operations for a sample data set (e.g., a list of books). The project submission will include the code and a video walkthrough of the application demonstrating its functionality on the GMIU Web Portal.The project must be submitted individually.	10
	Total	30

Suggested Specification table with Marks (Theory): 60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage %	25%	35%	20%	10%	05%	05%

Course Outcome:

	After learning the course the students should be able to:
CO1	Acquire knowledge of internet technologies, HTTP methods, security essentials, SEO fundamentals, and web design to enhance usability.
CO2	Implement HTML5 features, form validation, and CSS properties to create visually appealing and functional web pages.
CO3	Develop proficiency in JavaScript and jQuery for manipulating the DOM, handling events, and validating user input effectively.
CO4	Implement PHP fundamentals, focusing on flow control, string functions, and regular expressions for robust web application development.
CO5	Understand CRUD operations and OOP principles in PHP.

List of Practical

Sr. No	Description	Unit No	Hrs.
1	Write different steps of planning and publishing website.	1	2
2	Write a program that demonstrates heading, formatting, font and color tags of HTML.	2	2
3	1. Write HTML codes for displaying image and demonstrate hyper linking. 2. Write a code for design menu system using list tag.	2	2
4	Create Signup form using Input element.	2	2
5	Write a program to demonstrate 1. Meta tags 2. Frames 3. Frame sets	2	2
6	Write HTML and CSS code to display following irregular table and Fill color randomly.	2	2

	A	B	D		E			F	
		C		G	H		I		
		J							
	K			L		M			

7	Write the following styles in separate CSS file and also show how to link this CSS file in HTML file and show use of styles. 1. The headings should have normal font style and font size should be 120%. 2. Define a class Arial for paragraph which defines font family Arial and font style bold. 3. Apply a background color yellow and apply a background image.	2	2
8	Perform Following java script function using Example 1. alert() 2. prompt() 3. confirm()	3	2
9	Write JavaScript program to print 1 to N prime Number where number is entered by HTML form.	3	2
10	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	3	2
11	1. Write PHP Script to print Fibonacci series. 2. Write PHP Script to calculate total marks of student and display grade. 3. Write PHP Script using two dimensional arrays such as addition of two 2x2 matrices.	4	2
12	1. Write PHP Script to demonstrate use of associative arrays and for FOR EACH loop execution. 2. Write PHP script Using user defined function. 3. Write PHP script to demonstrate use of string function.	4	2
13	Create form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page (e.g. student registration/inventory/library form).	4	2
14	1. Write two different PHP script to demonstrate passing variables with sessions. 2. Write PHP script to demonstrate passing variables with cookies. 3. Write a program to keep track of how many times a visitor has loaded the page.	5	2
15	1. Create database using phpMyAdmin. 2. Write a program to read input data, from table and display all these information in tabular form on output screen.	5	2
		Total	30

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

[1] HTML 5 Black Book 2Ed, by Kogent Learning Solutions Inc.
[2] Learning PHP, MySQL, JavaScript, CSS & HTML5, 3rd Edition.
[3] A Step-by-Step Guide to Creating Dynamic Websites By Robin Nixon Publisher: O'Reilly Media.
[4] JavaScript for impatient programmers by Dr. Axel Rauschmayer.
[5] PHP: The Complete Reference By Steven Holzner, McGrawhill.