



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma Engineering

Level: Diploma

Branch: Information & Communication Technology

Subject Code : DI04032041

Subject Name : Web Technologies

<b>w. e. f. Academic Year:</b>	2025-26
<b>Semester:</b>	4 <sup>th</sup>
<b>Category of the Course:</b>	Professional Elective - II

<b>Prerequisite:</b>	Basic Programming Knowledge, Use of HTML and CSS
<b>Rationale:</b>	This course is essential in today's web development landscape, as it equips students with the knowledge and practical skills to create dynamic and interactive web applications using PHP while simultaneously introducing them to the fundamentals of version control and collaboration through GitHub. The course addresses the demand for proficient PHP developers and individuals capable of efficiently managing and collaborating on projects, making it a valuable addition to any web development curriculum.

## Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Demonstrate PHP programming concepts by writing scripts using variables, operators and control structures.	R, U, A
02	Develop PHP programs utilizing functions, array and strings.	R, U, A
03	Implement file handling, session management, and cookie-based operations in PHP	R, U, A
04	Integrate PHP with MySQL to perform CRUD (Create, Read, Update, Delete) operations and display data on web pages.	R, U, A
05	Design and manage PHP-based web applications using OOP, GitHub, and hosting concepts.	R, U, A

\*Revised Bloom's Taxonomy (RBT)

## Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA(M)	PA(I)	ESE (V)	
0	2	4	4	0	0	20	30	50



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## Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1. Introduction to PHP	1.1 Configuration and installation of PHP, Web Server, MySQL 1.2 Installing WAMP/XAMPP server 1.3 PHP Syntax, echo and print statements 1.4 PHP Constant, variables 1.5 PHP Data Types 1.6 PHP Operators and their precedence 1.7 Control structures (if..else, Elseif, while, do while, for loop, foreach loop, switch, break, continue)	5	15
2. Functions, arrays and strings	2.1 User-defined function, argument function, variable function, Return function, default argument, Passing Arguments by Reference 2.2 Scope of variable: Local, global 2.3 include() and require() function 2.4 Creating index-based and associative arrays and multidimensional arrays 2.5 Accessing array Element 2.6 Library functions of an array. (array_merge, array_fill, count, end, current, sort, rsort, in_array, array_search) 2.7 Creating and accessing String 2.8 Searching & Replacing String and Formatting String 2.9 Library functions for string	7	20
3. Forms Handling, Session, Cookies	3.1 Create, Open, read, write and append and close operation on file 3.2 Submitting form values using Get and Post Methods 3.3 Reading data from form using super globals \$_GET, \$_POST and \$_REQUEST 3.4 Creating Cookies, Set Cookies, Destroying Cookies 3.5 Create session, set session, destroying session 3.6 Validate email and URL using filter() function 3.7 Exception Handling in PHP using die() using custom error handling using try and catch	6	20
4. Working with Database in PHP	4.1 Introduction to MySQL and PHP Integration 4.2 Setting up a MySQL Database 4.3 Establishing Database Connection in PHP: Configuring PHP to connect to a MySQL database using the mysqli extension for database connectivity. 4.4 Executing SQL Queries in PHP: Performing basic CRUD operations (Create, Read, Update, Delete) using PHP, Writing	7	25



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	and executing SQL queries within PHP code and handling result sets. 4.5 Retrieving and Displaying Data in PHP: Fetching data from MySQL databases in PHP, displaying query results in HTML or other formats.		
5. Web Application Development and Management	5.1 Introduction to Object-Orientated Programming (OOP) in PHP: Concept of classes and objects, Basic OOP principles: constructor, destructor, encapsulation, access modifiers, inheritance, and advantages of using OOP in web applications. 5.2 Introduction to Version Control and GitHub: Basic of version control systems Introduction to Git and GitHub as a collaboration platform 5.3 Setting Up a PHP project on GitHub 5.4 Introduction to Website Hosting – Basic process flow for Hosting a website	5	20
	<b>Total</b>	<b>30</b>	<b>100</b>

### Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
-----NOT APPLICABLE-----					

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

### References/Suggested Learning Resources:

#### (a) Books:

No.	Title of Book,	Author	Publication
1.	PHP: The Complete Reference	Steven Holzner	McGraw-Hil
2.	Beginning PHP and MySQL	W. Jason Gilmore	Apress
3.	Teach yourself PHP, Mysql and Apache All in One	Julie C. Meloni	Pearson Education
4.	Learning PHP, MySQL, JavaScript, and CSS: A Step-by-Step Guide to Creating Dynamic Websites	Robin Nixon	O'Reilly Media, 2012, 9781449319267



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## (b) Open source software and website:

1. <https://www.php.net/>
2. <https://www.freecodecamp.org/news/the-php-handbook/>
3. <http://www.w3schools.com/PHP>
4. <https://www.phptutorial.net>
5. <http://www.tutorialspoint.com/php>
6. <https://www.geeksforgeeks.org/php-tutorial/>
7. <https://www.javatpoint.com/php-tutorial>

## Suggested Course Practical List:

Sr.No	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. Required
1	Configure and install PHP, a web server (WAMP/XAMPP), and MySQL on your machine	1	2
2	Write a PHP script to display a message using echo and print.	1	2
3	Write a PHP script to demonstrate use of global, local, static and constant variables.	1	2
4	Write a PHP script to demonstrate the ability to work with various data types in PHP, including strings, integers, floats, and booleans, by declaring variables, performing operations, and displaying results.	1	2
5	Write a PHP script to illustrate the use of arithmetic, comparison and logical operators.	1	2
6	a) Write a PHP code to find largest number out of three numbers. b) Write a PHP code to check if given number is prime or not.	1	2
7	Write a PHP code to print multiplication table.	1	2
8	Write a script to display Fibonacci numbers up to a given term.	1	2
9	Write a PHP Script for performing function that takes arguments, returns arguments, default argument and variable length argument.	2	2
10	Write a PHP script to implement call by reference and call by value.	2	2
11	Write a PHP script to Demonstrate Include () and require () function.	2	2



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12	Write a PHP script to demonstrate index based, Associative array and multidimensional Array.	2	2
13	a) Write PHP Script for addition and multiplication of two 2x2 matrices. b) Write a PHP script to find max, min from array and find average of array elements.	2	2
14	Write a PHP script to : - a) Transform a string in to uppercase letters. b) Transform a string in to lowercase letters. c) Make a string's first character in uppercase. d) Make a string's first character of all the words uppercase.	2	4
15	Write a PHP script to:- a) To generate a random number between the given range. b) To display the binary, octal and hexadecimal of a given decimal number. c) To display the sin, cos and tan of the given angle.	2	4
16	Write a PHP script to demonstrate use of fopen(), fread(), fwrite() and fclose() File functions.	3	2
17	a) Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page using GET Method. b) Create Website Registration Form using text box, check box, radio button, select, submit button. Display user inserted value in new PHP page using POST method.	3	2
18	Write a PHP script to validate form including name, email and url using appropriate.	3	2
19	Implement cookies management using PHP.	3	2
20	Implement session management using PHP.	3	2
21	Write a PHP script to connect with database server from your webpage.	4	2
22	Create a database with student table and write a PHP script to insert a record in student table.	4	2
23	Write a program to read student records from student table and display all these information in table format on output screen.	4	2
24	Write a PHP script to delete and update a specific record from table.	4	2



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25	Write a PHP script simple login system that allows user to add a new username if user doesn't exist in the database.	4	2
26	To Demonstrate the importance of encapsulation and data security in PHP.	5	2
27	To Demonstrate the importance of inheritance and code reusability in PHP	5	2
28	To study the Process of Web Hosting	5	2
	<b>TOTAL</b>		<b>60</b>

### List of Laboratory/Learning Resources Required:

1. Computer with latest configuration with Windows/Linux/Mac Operating System.
2. XAMPP/WAMP/LAMP/MAMP servers.
3. Text Editor such as Notepad ,VS Code, Sublime, Atom etc.
4. Web Browser such as Chrome, Firefox, Edge, Safari etc.
5. Multimedia projector

### Suggested Project List:

The students can undertake the projects that demonstrate their skills and competency in php programming here are a few suggested lists of projects; however, the course faculty can suggest other project titles as well.

1. Develop departmental Website
2. Develop a student record management web app.
3. Create a system for students to provide feedback on courses. Include a rating system and comments section for each course.
4. Develop library management system
5. Develop online study course on given subject
6. Develop a dynamic website for online admission process
7. Develop a system for tracking student attendance. Include features for marking attendance, generating reports, and notifying absent students.
8. Develop static/dynamic website for industrial application



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## **Suggested Activities for Students:**

1. Undertake course “PHP & MySQL ” available on Swayam online platform.  
[https://onlinecourses.swayam2.ac.in/aic20\\_sp32/preview](https://onlinecourses.swayam2.ac.in/aic20_sp32/preview)
2. Undertake course “PHP” available on solo learn online platform.  
(<https://www.sololearn.com/learn/courses/le-php>) or any other such site.
3. Undertake course “Building Web application in PHP” available on coursera online platform.  
(<https://www.coursera.org/learn/web-applications-php>) or any other such site.
4. Undertake course “Building Database Applications in PHP ” available on coursera online platform. (<https://www.coursera.org/learn/database-applications-php>) or any other such site.

## **Program Outcomes (POs):**

1. **Basic & Discipline specific knowledge:** An apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
2. **Problem Analysis:** Identify and analyze well defined engineering problems using codified standard methods.
3. **Design/ Development of Solution:** Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs.
4. **Engineering Tools, Experimentation and Testing:** Apply modern engineering tools and relevant technique to conduct standard tests and measurements.
5. **Engineering practices for Society, Environment and sustainability:** Apply relevant technology in context of Society, sustainability, environment and ethical practices.
6. **Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
7. **Life-long learning:** Ability to analyze individual needs and engage in updating in the context of context of technological changes.

## **Program Specific Outcomes (PSOs):**

1. Develop proficiency in Installation, maintenance and troubleshooting of electronics and communication systems.
2. Create customized solution of real-life problems using hardware and software.

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