Core 4 For the students admitted from A.Y. 2023-2024 & onwards		
Offering Department: **Computer Application**	Offered to: **Master of Computer Application**	
Semester - I		
Course Code	Course Title	Course Credit and Hours
23MCACC104	**Core 4:** Web development using PHP	**3 Credits - 3 hrs/wk**

Course Description:
This course provides an in-depth introduction to PHP programming language with a focus on object-oriented programming (OOP) principles. Students will learn the basics of PHP syntax, control structures, arrays, functions, and handling of HTML forms. The course then delves into more advanced PHP concepts such as object-oriented programming, inheritance, and interfaces. The course also covers the basics of JavaScript including event handling and manipulation of the Document Object Model (DOM). In addition, the course covers the basics of MySQL database management, including SQL language, creating databases and tables, and working with data in tables. By the end of the course, students will have a solid understanding of how to use PHP and related technologies such as JavaScript and MySQL to build dynamic web applications.

Course Purpose:

The purpose of this PHP course is to equip students with the knowledge and skills necessary to develop web applications using PHP, object-oriented programming (OOP) principles, JavaScript, and MySQL. Through a combination of lectures, practical exercises, and project-based assignments, students will learn how to design and develop dynamic, data-driven web applications that can interact with users in real-time. By the end of the course, students will be able to use PHP to build complex web applications that incorporate user authentication, form handling, data storage and retrieval, and dynamic page generation. The course also aims to provide students with a solid foundation in OOP concepts, enabling them to build scalable, modular, and maintainable codebases. Overall, the course is designed to prepare students for a career in web development, by providing them with practical, hands-on experience working with the latest tools and technologies in the field.

Course Outcomes: Upon completion of this course, the learners will be able to

CO No.	CO Statement	Bloom's Taxonomy Level (K_1 to K_6)
CO_1	Demonstrate knowledge of PHP syntax, control structures, and built-in functions	K1, K2
CO_2	Design and implement PHP programs using object-oriented programming principles	K3, K4
CO_3	Use MySQL to create and manage databases and tables, and perform basic CRUD operations	K2, K3
CO_4	Implement JavaScript to create dynamic, interactive web applications	K3, K4, K5
CO_5	Implement best practices for web development, including security and performance optimization	K3, K4, K5

Course Content	Hours
Unit-I: HTML and JavaScript	**9 hrs**
▪ JavaScript and HTML Text, Using Comments, Semicolons, Variables, Operators, Variable Typing Functions, Global Variables, Local Variables, DOM in JavaScripts, document.write, alert, prompt, confirm.	

Course Content	Hours
▪ Expressions, with Statements, try...catch, conditional statements, Looping structures ▪ JavaScript Functions, JavaScript Objects, JavaScript Arrays, JavaScript Validations.	
Unit-II: Installation and Structure of PHP, Functions and Scope of Variables	**9 hrs**
▪ **Setting Up a Development Server** • What is a WAMP, MAMP or LAMP, Installing XAMPP on Windows and Linux, Installing LAMP on Linux. • Installing Program Editor VSCode for PHP along with extensions. • Introduction to PHP. ▪ **The Structure of PHP:** Using Comments, Basic Syntax, Variables, Operators, Variable Assignment, Multiple Line Commands, Variable Typing, Constants, Predefined Constants, Difference between the echo and print commands. ▪ **Functions.** ▪ **Variable Scope.**	
Unit-III: PHP Control Flow, Functions and Including Files in PHP.	**9 hrs**
▪ **Expressions and Control Flow in PHP:** • **Expressions:** True or False, Literal and Variables, Operators in PHP, Conditional statements in PHP, Looping structures in PHP, Implicit and Explicit Casting in PHP. ▪ **PHP Functions:** • **PHP Functions:** Defining a Function, Returning a Value, Returning an Array, Do No Pass Arguments by Reference, Returning Global Variables,Magic Functions • **Including and Requiring Files:** include, include once, require, require once statements.	
Unit-IV: PHP Arrays, Array Functions, File Handling in PHP	**9 hrs**
▪ **PHP Arrays:** Basic Access, Numerically Indexed Arrays, Associative Arrays, Assignment using array Keywords, The foreach ... as Loop, Multidimensional Arrays, ▪ **Array Functions:** is_array, count, sort, explode, extract, compact, reset. ▪ **File Handling:** Checking whether a File Exists, Creating a File, Reading from Files, Copying Files, Moving a File, Deleting a File, Updating File, Uploading File. ▪ **Cookies, Sessions and Auth:** Using Cookies in PHP, Using Sessions in PHP.	
Unit-V: Object Oriented PHP and MySQL with PHPMyAdmin	**9 hrs**
▪ **PHP Objects:** • Declaring Class, Creating an Object, Accessing Objects, Cloning Objects, Constructor, Destructors, Writing Methods, Static Methods, Declaring Properties, Declaring Constants, Inheritance, Trait, Interface, Abstract, Namespace, Method Chaining, Autoload, Magic Constants, ▪ **MySQL and PHPMyAdmin** • MySQL Basics, Accessing MySQL via CLI and PHPMyAdmin • **Database Designs:** Primary Key, Foreign Key relations, • **Relations:** One-to-One, One-to-Many, Many-to-Many • **Backup and Restoring:** Using mysqldump, Backup File, Restoring File, Dumping data in CSF Format. • **PHP-MySQL Connection:** $_POST, $_GET Array, $_REQUEST Array and storing data to MySQL Table. • **CRUD Operations:** Inserting, Deleting, Displaying the Form, Querying the Database, Creating Table, Dropping Table, Adding Data, Retrieving Data, Updating Data, AUTO_INCREMENT.	

Text books:

- Nixon, Robin. Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5. O'Reilly Media, Inc., 2014.
- DuBois, Paul. MySQL, 5th Edition. Addison-Wesley Professional, 2013.
- Flanagan, David. JavaScript: The Definitive Guide. O'Reilly Media, Inc., 2020.

Reference books:

- Lerdorf, Rasmus, Kevin Tatroe, and Peter MacIntyre. Programming PHP: Creating Dynamic Web Pages. O'Reilly Media, 2013.
- Zandstra, Matt. PHP Objects, Patterns, and Practice. Apress, 2017.
- Sklar, David. Learning PHP 7: A Pain-Free Introduction to Building Interactive Web Sites. O'Reilly Media, 2016.
- Flanagan, David. JavaScript: The Definitive Guide. O'Reilly Media, 2020.
- Duckett, Jon. JavaScript and jQuery: Interactive Front-End Web Development. Wiley, 2014.
- Eich, Brendan. JavaScript: The Good Parts. O'Reilly Media, 2008.
- DuBois, Paul. MySQL, 5th Edition. Addison-Wesley Professional, 2013.
- Yarger, Jon, Kevin Kline, and Bob Beauchemin. Pro MySQL. Apress, 2013.
  Banks, Matthew. MySQL Cookbook: Solutions for Database Developers and Administrators. O'Reilly Media, 2014.

Pedagogic tools:

- Chalk and Board
- Power point presentation
- Seminar
- Videos

Methods of Assessment & Tools:
Components of CIA: 30 marks

Sr. No.	Component	Content	Duration (if any)	Marks	Sub Total
A	Test 1	Any 2 Units	$1^{1/2}$ hours	5 (Set for 30)	20
	Test 2	Remaining 3 Units	2.5 Hours	15 (Set for 45)	
B	Assignment	-	-	5 (20 marks)	10
	Class activity	-	-	5 (20 marks)	
				Grand Total	**30**

Assignment	• Abstract and executive summary • Case study writing • Concept mapping • Student generated handbook • Presentations
Class activity	• Quizzes • Poster Presentation • Group Discussion