



बिरसा मुंडा ट्रायबल युनिवर्सिटी Birsa Munda Tribal University

राजपिपला, जि० नर्मदा Rajpipla, Dist. Narmda

Established by Tribal Development Department, Govt. of Gujarat

School of Computer Science

M. Sc. (Information Technology) Programme

Subject Code & Name: MITME205-1- Advanced Web Programming

Teaching And Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
				CCE		SEE	
L	T	P	Total	TH	PWE	TH	PWE
2	-	2	4	25%	25%	25%	25%

Programme Name	M. Sc. (Information Technology)
Semester	2
Course Code	MITME205-1
Course Title	Advanced Web Programming
Course Content Type (Th. / Pr.)	Th. + Pr.
Course Credit	2+2
Sessions + Lab Per Week	2+4
Total Teaching/ Lab Hours	30+60
* 2 Lab = 1 session	

Learning Objectives

Upon successful completion of this course, students will be able to:



- Understand the fundamentals of PHP programming and server-side web development concepts
- Apply PHP programming constructs, forms, sessions, cookies, and file handling techniques to develop dynamic web applications
- Develop database-driven web applications using PHP and MySQL with CRUD operations and search functionalities
- Analyze web application security requirements and integrate AJAX, JSON, and MVC concepts for building interactive and secure web applications

Learning Outcomes

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

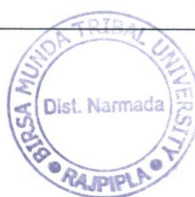
- Explain PHP syntax, operators, control structures, functions, and basic server-side scripting concepts
- Implement form handling, session management, cookies, arrays, and file operations using PHP
- Design and Develop database-integrated web applications using PHP and MySQL for real-world CRUD operations
- Build secure and interactive web applications using AJAX, JSON, exception handling, input validation, and MVC architecture concepts

CLO – PLO Mapping Matrix

CLO/ PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
CLO1	3	2	2	2	–	–	1	1	2
CLO2	3	3	3	2	–	1	2	1	2
CLO3	3	3	3	3	1	2	2	2	2
CLO4	3	3	3	3	1	3	3	2	3

Detailed Contents

Unit	Topic/Sub Topic	Teaching Hours
I	Basics of PHP	15



Basics of PHP	• Introduction to PHP • Features of PHP • Client-side vs Server-side scripting • PHP installation environment (XAMPP / WAMP) • Basic PHP Syntax • Variables and Constants • Data Types • Operators • Control Statements • Loops • Functions	
II Forms, Arrays, Sessions and File Handling	Forms, Arrays, Sessions and File Handling • HTML Forms with PHP • GET and POST Methods • Form Validation Basics • Arrays in PHP • String Functions • Date and Time Functions • Sessions • Cookies • File Handling • File Uploading	15
III PHP with MySQL Database	PHP with MySQL Database • Introduction to MySQL with PHP • Database Connectivity • Create Database and Tables • Insert Records	15

	• Update Records • Delete Records • Select Records • Search Functionality	
IV Advanced Web Development Concepts	Advanced PHP Concepts • Object Oriented Programming in PHP • Classes and Objects • Constructors and Destructors • Inheritance and Encapsulation • Include and Require Files • Exception Handling • Error Handling Techniques Security in Web Applications • Input Sanitization • Form Validation Techniques • SQL Injection Prevention using Prepared Statements • Password Hashing and Verification • Secure Session Management AJAX and JSON Integration • Introduction to AJAX • Client-side and Server-side Communication • AJAX with PHP • Fetch API Basics • JSON Data Format • Encoding and Decoding JSON in PHP • Dynamic Data Loading using AJAX and JSON	15

	• Live Search and Form Submission without Page Reload Introduction to Modern Web Architecture • Introduction to MVC Architecture • Basics of REST API Concept	
Reference Books		
4. Bayross, E., & Shah, S. (n.d.). <i>PHP 5.1 for beginners</i>. SPD Publications. 5. Lerdorf, R., & Tatro, K. (2002). <i>Programming PHP</i>. O'Reilly Media. 6. PHP Programming Cookbook 7. Beginning PHP 5 by Wrox.		
Web Resources		
1. https://www.php.net/ 2. https://www.geeksforgeeks.org/php/php-tutorial/		
Required Software(s) (if Any)		
XAMPP Server		

L:: Lecture, **T::** Tutorial, **P::** Practical

CCE:: Continuous & Comprehensive Evaluation

(CCE theory includes Mid Semester Examination, Assignment, MCQ Quizzes, Seminar, Reflective Notes, Class Participation, Case Analysis and Presentation, Slip Tests (Announced/ Surprised), Attendance etc. or any combination of these)

PWE: Practical Work Examination

(PWE includes Laboratory Practical Work, Project Work, Viva simulation exercise work etc.)

SEE:: Semester End Evaluation



Sample Practical Exercises:

1. Install and configure XAMPP/WAMP server and create a simple PHP page to display dynamic content.
2. Write a PHP program demonstrating variables, constants, data types, and operators.
3. Write a PHP program to check whether number is even or odd.
4. write a PHP program to check whether a given number is prime or not.
5. Write a PHP Program to find the largest number among three given number using conditional statements.
6. Write a PHP Program to calculate simple and compound interest based on user inputs
7. Write a PHP program to display student's result using concepts of conditional statements.
8. Write a PHP program to determine whether a given year is a leap year or not.
9. Write a PHP program to calculate the area of triangle, rectangle, square and circle using switch case structure.
10. Write a PHP program to generate multiplication table for a given number.
11. Write a PHP Program to calculate the factorial of given number.
12. Write a PHP program to generate the Fibonacci series up to a specified number of terms.
13. Write a PHP Program to determine whether a given number is a palindrome or not.
14. Write a PHP program to design calculator and implement concept of user-defined functions with parameters and return values.
15. Write a PHP program to perform various string manipulation operations like search, replace, word count.
16. Write a PHP program demonstrating date and time functions.
17. Create an HTML form and process user input using PHP GET method for visitor inquiry form.
18. Create an HTML form and process user input using PHP POST method for online feedback form.



19. Develop a PHP application with server-side form validation for a student admission form.
20. Write a PHP program demonstrating indexed, associative, and multidimensional arrays.
21. Develop a PHP application for student registration with validation and establish MySQL database connectivity with insert, update, delete and display record.
22. Create a PHP application to manage user sessions for login and logout functionality.
23. Develop a PHP application using cookies to store and retrieve user preferences.
24. Write a PHP program to create, read, update and delete text files.
25. Write a PHP Program to create a library management database and required tables.
26. Create a complete CRUD application for employee registration module.
27. Develop a search module to find records using different search criteria.
28. Write a PHP program demonstrating classes, objects, constructors, and destructors.
29. Write a PHP Program to implementing inheritance and encapsulation concepts.
30. Create reusable PHP modules using include() and require() statements.
31. Write a PHP program demonstrating exception handling using try-catch blocks.
32. Develop a PHP application implementing custom error handling techniques.
33. Create a secure login system using password hashing and verification.
34. Develop a PHP application demonstrating input sanitization and validation techniques.
35. Implement prepared statements to prevent SQL Injection attacks.
36. Develop a PHP application with secure session management.
37. Create an AJAX-enabled form that submits data without page refresh.
38. Develop a PHP application that loads dynamic content using AJAX.
39. Write a PHP program to encode and decode JSON data.
40. Create a live search application using AJAX, PHP, and MySQL.
41. Develop a real-time username availability checker using AJAX.

