

20MCA133	WEB PROGRAMMING LAB	CATEGORY	L	T	P	CREDIT
		PRACTICAL	0	1	3	2

Preamble: With a dynamic learn-by-doing focus, this laboratory course encourages the students to explore the designing of web application by implementing the relevant and recent techniques. This course challenges the students to exercise their creativity in both programming and designing.

Prerequisite: Basic understanding of computer programming, Internet and Database etc. is very helpful.

Course Outcomes: After the completion of the course the student will be able to;

CO 1	Explore markup languages features and create interactive web pages using them.
CO 2	Learn and design client-side validation using scripting languages.
CO 3	Design front end web page and connect to the back-end databases.
CO 4	Do Client-side & Server-side scripting
CO 5	Develop Web Applications

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	3	3	3	2	2		3	3				
CO 2	3	3	3	2	2		3	3	1			
CO 3	3	3	3	2	2		3	3				
CO 4	3	3	3	2	2		3	3				2
CO 5	3	3	3	3	3		3	3			2	2

Assessment Pattern

Bloom's Category	Continuous Assessment Tests		End Semester Examination
	1	2	
Remember(K1)			
Understand(K2)			
Apply(K3)	10	10	10
Analyse(K4)	10	10	10
Evaluate(K5)	10	10	10
Create(K6)	20	20	20

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	50	50	3 hours

Continuous Internal Evaluation Pattern:

Continuous Internal Evaluation Pattern (Maximum Marks: 50)	
Attendance	15%
Maintenance of daily lab record and GitHub management	20%
Regular class viva	15%
Timely completion of day to day tasks	20%
Tests/Evaluation	30%

End Semester Examination Pattern:

End Semester Evaluation Pattern			
Verification of Daily program record and Git Repository			5 marks
Viva			10 marks
Problem solving (Based on difficulty level, one or more questions may be given)	Flowchart / Algorithm / Structured description of problem to explain how the problem can be solved / Interface Design	15%	35 marks
	Program correctness	50%	
	Code efficiency	15%	
	Formatted output and Pushing to remote Git repository	20%	
Total Marks			50 marks

Course Level Assessment Questions

Course Outcome 1 (CO1):

1. Model a simple HTML file to demonstrate the use of different tags. (K3)
2. Create a HTML file to link to different HTML page which contains images, tables, and also link within a page. (K6)
3. Create a HTML page with different types of frames such as floating frame, navigation frame & mixed frame. (K6)
4. Analyze CSS by applying the different styles using inline, external & internal style sheets in a HTML file. (K4)
5. Demonstrate a registration form using HTML. (K3)

Course Outcome 2 (CO2)

1. Create a HTML page to explain the use of various predefined functions in a string and math object in java script. (K6)
2. Generate the calendar using JavaScript code by getting the year from the user. (K6)
3. Create a HTML registration form and to validate the form using JavaScript code. (K6)
4. Evaluating JavaScript Event Handling for every click of a button to change the background color of a HTML page. (K5)
5. Create a HTML page to display a new image and text when the mouse comes over the existing content in the page using JavaScript Event Handling. (K6)
6. Create a HTML page to show online exam using JavaScript. (K6)

Course Outcome 3(CO3):

1. Develop a PHP program to connect to a database and retrieve data from a table and show the details in a neat format. (K6)

Course Outcome 4 (CO4):

1. Outline a registration form using PHP and do necessary validations. (K4)
2. Compose Electricity bill from user input based on a given tariff using PHP. (K6)
3. Build a PHP code to store name of students in an array and display it using print_r function. Sort and Display the same using asort & arsort functions. (K6)
4. Build a PHP code to store name of Indian Cricket players in an array and display

the same in HTML table. (K6)

Course Outcome 5 (CO5):

1. Develop Web applications using HTML and PHP and deploy. (K6)
2. Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings. (K6)
3. Develop a web application for Airline Reservation System using any PHP framework (Laravel, CodeIgniter, Symfony, CakePHP etc.). (K6)
4. Test the application on an Application Server. (K5)

Syllabus

Introduction To Web: Client/Server concepts, Components of Web Application, Types of Web Content, Overview of HTTP - HTTP request – response, Generation of dynamic web pages, Application Servers, Web Security.

Markup Language (HTML): Formatting and Fonts, Commenting Code, Anchors, Backgrounds, Images, Hyperlinks, Lists, Tables, Frames, HTML Forms.

Cascading Style Sheet (CSS): The need for CSS, Basic syntax and structure, Inline Styles, Embedding Style Sheets, Linking External Style Sheets, Backgrounds, Manipulating text, Margins and Padding, Positioning using CSS.

Client Side Scripting using JavaScript: Core features, Data types and Variables, Operators -Expressions and Statements, Functions, Objects, Array, String - Date and Math related Objects, Document Object Model, Event Handling, Form handling and validations.

An overview of Relational Database Design: Tables, Attributes, Tuples, Primary keys, Foreign keys, Indexes, DDL Commands – CREATE, ALTER, DROP and TRUNCATE; DML Commands – SELECT, INSERT, UPDATE and DELETE.

Server Side Scripting using PHP: Setting up the environment (Example - XAMP server), PHP Programming basics - Print/echo, Variables and constants, Strings and Arrays, Operators, Control structures and looping structures, Functions, Reading Data in Web Pages, Embedding PHP within HTML, Establishing connectivity with database, Debugging with phpdbg.

Web Application development in any PHP framework (Laravel, CodeIgniter, Symfony, CakePHP etc.): Naming convention, MVC model, Connectivity with Database, Database interaction.

Debugging web apps: Browser debugging tools (Any browser web developer tools) - View and change the DOM and CSS, Console, Debug JavaScript, View and debug network activity, Performance tools etc.

Reference Books

1. David Flanagan, “*JavaScript: The Definitive Guide*”, 6th Edition”, O'Reilly Media
2. Douglas E Comer, “*The Internet Book: Everything You Need to Know About Computer Networking and How the Internet Works*”, 4th Edition, Prentice Hall
3. Harvey Deitel and Abbey Deitel, “*Internet and World Wide Web - How To Program*”, 5th Edition, Pearson Education
4. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, “*Database System Concepts*”, McGraw Hill Education, 6th Edition (2011)
5. Steve Suehring, Tim Converse, and Joyce Park, “*PHP6 and MySQL Bible*”, Wiley India Pvt Ltd (2009)
6. Steven Holzner, “*PHP-The Complete Reference*”, Tata McGraw Hill, 1st Edition (2007)
7. Thomas A Powell, Fritz Schneider, “*JavaScript: The Complete Reference*”, 3rd Edition, Tata McGraw Hill

Web Resources

1. <http://php.net/manual/>
2. <https://pepa.holla.cz/wp-content/uploads/2016/08/JavaScript-The-Definitive-Guide-6th-Edition.pdf>
3. <http://index-of.es/PHP/PHP6%20and%20MySQL%20Bible.pdf>
4. <https://www.udemy.com/course/html5-fundamentals-for-beginners/>
5. <https://www.udemy.com/course/programming-in-javascript/>
6. <https://www.udemy.com/course/php-mysql-tutorial/>

List of Lab Experiments/Exercises

1. Create a simple HTML file to demonstrate the use of different tags.
2. Create a HTML file to link to different HTML page which contains images, tables, and also link within a page.

3. Create a HTML page with different types of frames such as floating frame, navigation frame & mixed frame.
4. Create a HTML file by applying the different styles using inline, external & internal style sheets.
5. Create a registration form using HTML.
6. Create a HTML page to explain the use of various predefined functions in a string and math object in java script.
7. Generate the calendar using JavaScript code by getting the year from the user.
8. Create a HTML registration form and to validate the form using JavaScript code.
9. Create a HTML page to change the background color for every click of a button using JavaScript Event Handling.
10. Create a HTML page to display a new image and text when the mouse comes over the existing content in the page using JavaScript Event Handling.
11. Create a HTML page to show online exam using JavaScript.
12. Develop a registration form using PHP and do necessary validations.
13. Compose Electricity bill from user input based on a given tariff using PHP.
14. Build a PHP code to store name of students in an array and display it using print_r function. Sort and Display the same using asort & arsort functions.
15. Build a PHP code to store name of Indian Cricket players in an array and display the same in HTML table.
16. Develop a PHP program to connect to a database and retrieve data from a table and show the details in a neat format.
17. Develop Web applications using HTML and PHP and deploy.
18. Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.
19. Develop a web application for Airline Reservation System using any PHP framework (Laravel, CodeIgniter, Symfony, CakePHP etc.).
20. Test the application on an Application Server.

***Note:** Students can be given a group micro project, so that they learn to work in a team environment. They can also be trained on project management tools.*

Course Contents and Lecture Schedule

Topic	No. of lectures
Client/Server concepts, Components of Web Application, Types of Web Content, Overview of HTTP - HTTP request – response, Generation of dynamic web pages, Application Servers, Web Security.	1Hr.
HTML - Formatting and Fonts, Commenting Code, Anchors, Backgrounds, Images, Hyperlinks.	4 Hrs.
HTML - Lists, Tables, Frames, HTML Forms.	4 Hrs.
The need for CSS, Basic syntax and structure, Inline Styles, Embedding Style Sheets, Linking External Style Sheets, Backgrounds.	4 Hrs.
CSS - Manipulating text, Margins and Padding, Positioning using CSS.	4 Hrs.
JavaScript: Core features, Data types and Variables, Operators - Expressions and Statements.	3 Hrs.
JavaScript: Functions, Objects, Array, String - Date and Math related Objects, Document Object Model, Event Handling.	4 Hrs.
JavaScript: Form handling and validations.	4 Hrs.
An overview of Relational Database Design: Tables, Attributes, Tuples, Primary keys, Foreign keys, Indexes, DDL Commands – CREATE, ALTER, DROP and TRUNCATE.	4 Hrs.
DML Commands – SELECT, INSERT, UPDATE and DELETE.	4 Hrs.
PHP: Setting up the environment (Example - XAMP server), PHP Programming basics - Print/echo, Variables and constants.	4 Hrs.
Strings and Arrays, Operators, Control structures and looping structures.	4 Hrs.
Functions, Reading Data in Web Pages, Embedding PHP within HTML, Establishing connectivity with database.	4 Hrs.
PHP framework: naming convention, MVC model, Connectivity with Database, Database Interaction.	6 Hrs.