

COURSE TITLE	WEB TECHNOLOGY
COURSE CODE	09CE3404
COURSE CREDITS	3

Objective:

- 1 The main objective of this course is to provide students with comprehensive knowledge of modern web technologies and application development. The course introduces concepts of web architecture, client-server model, responsive web design, frontend and backend development. It enables students to design responsive user interfaces using HTML5, CSS3, Bootstrap and JavaScript, and to develop dynamic web applications using PHP and MySQL database connectivity. The course is skill-oriented and focuses on practical implementation of web-based applications.

Course Outcomes: After completion of this course, student will be able to:

- 1 Apply concepts of modern web architecture including client–server model, hosting types, DNS, version control, and deploy websites using GitHub Pages or similar platforms.
- 2 Design responsive and accessible web pages using Semantic HTML5, advanced forms, CSS3, media queries, and Bootstrap components
- 3 Develop interactive web pages using JavaScript and jQuery with event handling, objects, and form validation.
- 4 Apply PHP programming constructs such as variables, operators, arrays, loops, and conditional statements to develop server-side logic
- 5 Implement reusable PHP functions and process user data through form inputs using built-in string, date, and math functions
- 6 Develop database-driven web applications using PHP and MySQL by performing CRUD operations and establishing database connectivity

Pre-requisite of course: Programming Fundamentals

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	6	0	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Modern Web Architecture & Hosting Client-Server Architecture, Frontend, Backend and Full Stack overview, Web Hosting types (Shared, VPS, Cloud – overview), Domain Name System (DNS) working, Introduction to Version Control (Git – basic concept), Website deployment using GitHub Pages / similar platform	4

Contents : Unit	Topics	Contact Hours
2	Advanced HTML & Responsive CSS Semantic HTML5 elements, Forms (advanced attributes & validation), Responsive Web Design principles Screen reader friendly structure, Media Queries, Introduction to Bootstrap5, Custom validation messages, Responsive Navbar, Cards, Forms, video and audio tags with controls source element, Embedding YouTube/Google Maps iframe security basics.	5
3	JavaScript And jQuery Basics of JavaScript, JavaScript syntaxes for variables, functions, branches and repetitions, JavaScript alert, prompt and confirm, Objects in JavaScript, forms and validations, JavaScript events, Basics of jQuery, jQuery syntaxes, jQuery selectors, events, effects	5
4	PHP Introduction to PHP, Variable, Constant, Data types, Operators: arithmetic, logical, assignment, bitwise, Loop: while, do...while, for, break statements, Flow control statements: simple if, if-else, else-if clause, switch statements, PHP Array: Indexed Array, Associative Array	5
5	Function and Data Inputs Defining function, calling function, retrieving value from function, date and time function, math function, string function, data inputs through form controls	4
6	PHP & Database Basics of MySQL, database connectivity, insertion of data, retrieving data, updating of data, deletion of data	5
Total Hours		28

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practical-1 Create a GitHub account and create a new repository for managing project files online.	2
2	Practical-2 Implement multimedia elements using video and audio tags with multiple source formats and embed external content using secure iframe implementation.	2
3	Practical-3 Design a screen reader friendly webpage using proper semantic structure, alternative text and labels.	2
4	Practical-4 To develop a responsive user interface using Bootstrap 5 components such as Navbar, Cards, and Forms.	3
5	Practical-5 Write JavaScript Program to Add Two Numbers.	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
6	Practical-6 Write JavaScript Program to check if a number is Positive, Negative or Zero.	2
7	Practical-7 Write a JavaScript Code to learn about different events of JavaScript.	2
8	Practical-8 Write a JavaScript code to change the HTML content.	2
9	Practical-9 Write a JavaScript code to change the HTML Attribute.	2
10	Practical-10 Write a JavaScript code to change the CSS style.	2
11	Practical-11 Write a JavaScript code to hide/show HTML elements.	2
12	Practical-12 JavaScript Code to understand various types of alerts in JavaScript.	2
13	Practical-13 Write a JavaScript program to display the current date and time on a webpage using Date object.	2
14	Practical-14 Create a PHP script to find maximum number from given number.	2
15	Practical-15 Write a PHP script to get the client IP address.	2
16	Practical-16 Write a PHP code to display formatted output using PHP and HTML to create dynamic pages.	2
17	Practical-17 Write a PHP code to understand concept of GET and POST method.	3
18	Practical-18 Write a PHP code to design basic calculator.	3
19	Practical-19 Write a PHP code to understand the concept of Session.	2
20	Practical-20 Write a PHP code to connect with the database.	2
21	Practical-21 Write a PHP code to insert the data into a database when user submits a form.	2
22	Practical-22 Write a PHP code to delete the data from database.	3
23	Practical-23 Write a PHP code to update the data of a row in a table.	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
24	Practical-24 Develop a mini project with the help of HTML, CSS, JavaScript, PHP and Database.	6
Total Hours		56

Textbook :

- 1 Responsive Web Design with HTML5 and CSS, 3rd Edition, Ben Frain, Packt Publishing, 2022

References:

- 1 HTML and CSS: Design and Build Websites, HTML and CSS: Design and Build Websites, Jon Duckett, John Wiley & Sons, 2011
- 2 Developing Web Applications, Developing Web Applications, Ralph Moseley and M. T. Savaliya, Wiley-India, 2013

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
0.00	0.00	35.00	35.00	30.00	0.00

Instructional Method:

- 1 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, also need to use ICT tools and facilities.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Supplementary Resources:

- 1 <http://nptel.ac.in>
- 2 <https://git-scm.com/docs>
- 3 <https://guides.github.com>
- 4 <http://www.w3schools.com/>
- 5 <http://getbootstrap.com/>
- 6 <https://alison.com>

Supplementary Resources:

7 <https://www.sololearn.com/en/learn/courses/web-development>