FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2020-21

Programme: **Bachelor of Engineering (Information Technology)**

Semester: **V**

Course Code: **102044505**

Course Title: **Web Development**

Course Group: **Professional Core Course**

Course Objectives: Internet is a strong medium for this fast-growing world. The motivation behind this course is to provide students' knowledge regarding World Wide Web (WWW), browser, client server architecture and web programming. By learning this course student will be able to create both front end and back-end concepts for any web-based application with advanced user interface elements.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
3	0	2	4	40 / 14	20 / 07	60 / 21	30 / 10	150 / 52

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Introduction to World Wide Web and Concepts of Web Designing:** History of WWW, the legacy of internet, Browser architecture, Client Server Concept, Introduction to HTTP and HTTPS protocols, Website and Web Portals, examples of static and dynamic websites, types of servers and frameworks, Introduction to Servers like WAMP, XAMP. Fundamentals of Web Designing, understanding look and feel of a website from user's perspective, types of websites, User Interface and Experience, standard layouts, navigations, sitemaps.	03
2	**Introduction to HTML:** Basics of HTML, structure of an HTML page, HTML tags, meta tags, HTML forms, frames, tables, buttons, user inputs. Introduction to HTML5, New features in HTML5 as compared to HTML, audio and video interfaces, headers and footers, articles, HTML Semantics.	05
3	**CSS Experience:** CSS and User experience, Structure and Syntax of CSS, CSS properties: background, color, fonts, borders, positioning, animations, images, wild cards etc. Introduction to CSS 3.0, New features in CSS3 compared to CSS, Variables, CSS3 properties: opacity, reflections, gradients, transitions, transformations, animations, Rounded Corners, Web Fonts, Responsive web design and Media Query.	05

4	**Introduction to Client-Side Scripting:** Introduction to JavaScript, architecture and execution, internal and external JavaScript, JavaScript entities: variables, functions, loops, conditions, arrays, objects, alerts etc. DOM architecture, built-in functions, validations and regular expressions, event handling and Objects in JavaScript, introduction to JSON.	**10**
5	**PHP Basics:** Introduction to PHP, structure of a PHP page, PHP Syntax: Variables, loops, functions, conditions, arrays, strings and form processing, regular expressions, data, and time file uploads etc.	**09**
6	**PHP Advance:** Exception Handling, Session and State management, Cookies, Session Variables, PHP and database connectivity, Database creation and data storage, Prepared Statements, Query execution and Result retrieval,	**05**
7	**Advanced Web Technologies:** Creating REST API using PHP, Introduction to AJAX & jQuery.	**03**
	Total	**40**

List of Practicals / Tutorials:

1	**Demonstration of Web Browsers**: Different components, Checking SSL Certificates, Inspect Elements, Browser Console, view Source etc.
2	**Basic HTML Programming** 1. Creating Sample HTML pages using tags like, headers, paragraphs, alignments, divisions, lists etc. 2. Create tables in HTML. 3. Displaying Images in HTML.
3	**HTML Forms** 1. Basics of Form Development Practical: text fields, radios, buttons, checkboxes. 2. Advanced Form Development Practical: Combo, Date, File Upload.
4	**CSS Programming** 1. Basics of CSS programming Practical: Class, Id, changing properties like color, size, background etc. 2. CSS 3 Programming Practical: shadow, orientation, transformation, gradient etc. 3. Positioning practical in CSS: Absolute and relative positioning, Z-index.
5	**JavaScript** 1. Basic JS Practical: script tags, alerts, documents, functions, arrays, loops, and conditions 2. Advanced JS Practical: Objects, DOM references: getElementById, InnerHTML etc.
6	**JavaScript and Event Listeners** 1. Listeners and JavaScript Practical: Mouse motion, movement, keyboard. 2. Perform Regular Expressions and validation using JavaScript.
7	**PHP** 1. Write a PHP script to upload a file to server. 2. Write a PHP script to get the value from one form and display it into other form. 3. Write a PHP script for login authentication. Design an html form which takes username and password from user and validate against stored username and password in file.

8	Write **PHP** script for storing and retrieving user information from MySql table. 1. Design an Html page which takes Name, Address, Email and phone from user. (registration.php). 2. Store this data in MySQL database. 3. Next page displays all user in html table using PHP (display.php).
9	Write a **PHP** program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.
10	**Create REST API** using PHP to send the form data like username, email into the database and test that API.
11	**Mini Project (Part 1: Front End):** Develop a website for registration of newly admitted students. The site should contain following pages: 1. Student Sign-up Page 2. Student Login Page 3. Forgot Password Page 4. Student Registration Page 5. Upload Documents Page 6. Edit Current Profile Page
12	**Mini Project (Part 2: Back End):** Develop Database connectivity along with CRUD operations for website developed in Part 1. The backend architecture should contain following tables: 1. Student Login Table: Contains login credentials for student authentication. 2. Student Registration Table: Contains all the information provided by the student through the registration page. 3. Document Track Table: This table contains track of documents uploaded by the student.

Reference Books:

1	Web Technology, Moseley and Savaliya, Wiley India
2	HTML 5 Black Book 2Ed, Kogent Learning Solutions Inc, Dreamtech
3	Learning PHP, MySQL, JavaScript, CSS & HTML5, 3rd Edition, Robin Nixon, O'Reilly
4	PHP: The Complete Reference by Steven Holzner, McGrawhill
5	Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5 (Learning PHP, MYSQL, JavaScript, CSS & HTML5) 5th Edition by Robin Nixon.
6	Programming PHP: Creating Dynamic Web Pages by Kevin Tatroe.

Supplementary learning Material:

1	https://www.w3schools.com/
2	https://www.tutorialspoint.com/
3	https://developer.mozilla.org/en-US/docs/Web
4	Coursera course on Web Design for Everybody: Basics of Web Development & Coding Specialization offered by University of MICHIGAN.
5	Coursera course on Responsive Website Development and Design Specialization offered by University of MICHIGAN.
6	NPTEL Video Lectures of Internet Technology by Indranil Sengupta, IIT Kharagpur [Available at: http://nptel.ac.in/courses/106105084/]

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Seminar/Poster Presentation
- Industrial/ Field visits
- Course Projects

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15%	20%	30%	10%	10%	15%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%Weightage
CO-1	Understanding the basics of Web Designing and usage of various tags along with appropriate styling.	**15**
CO-2	Designing websites based on different themes, layouts, and functionalities.	**30**
CO-3	Enhancing UI/UX by developing web pages more adaptable to different mobile platforms.	**30**
CO-4	Learn how to use Server-side programming for creating dynamic web services along with customized requirements.	**15**
CO-5	Connectivity with Databases and applying CRUD operations for information storage and retrieval.	**10**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	June-2020
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025