

Course Code	Course Title	Credit Hours
CS4405	Web Technologies	4(3+1)

Prerequisites: Fundamentals of Computers, Object Oriented Programming

Course Description: This course provides a detailed presentation and understanding of the basic concepts and principles of the World Wide Web and the essential web development languages, tools, and technologies. Course content will focus on introducing and familiarizing students with the basic tools required for web programming including HTML, CSS, JavaScript, and server-side programming using PHP. Questions such as what are they, when should we use these languages, for what purpose and to what extent these languages help us create modern, engaging and stable websites will be covered. Students will experience how to create basic web pages with HTML, including basic structuring of page content, apply basic formatting styles using CSS, understanding JavaScript for basic interactivity and client-side scripting, and create dynamic web pages by implementing server-side script to perform operations on a web server. A key part of this course is its problem-based approach which requires students to design and create a website of ever-increasing sophistication as the course progresses.

Aims and Objectives: When students complete this course, they will be able to:

- Know the fundamentals of web application architecture and web programming.
- Apply a structured approach to identifying needs, interests, and functionality of a website.
- Design dynamic websites that meet specified needs and interests.
- Write well-structured, easily maintained, standards-compliant, accessible HTML code.
- Write well-structured, easily maintained, standards-compliant CSS code to present HTML pages in different ways.
- Use JavaScript for client-side scripting and add dynamic content to pages.
- Use PHP to implement server-side script for creating dynamic web pages and access databases.
- Design and implement an interactive web site(s) with regard to issues of usability, accessibility, and internationalisation.
- Further study web technologies, both those that exist today and those that will be developed in the future.
- Work in collaborative environment by working in group assignments.

Course Contents: History and Advantages and Disadvantages of Internet, Web Server, Web Browser, Web Clients, and Search Engines, Client-Server Architecture, Types and Categories of Websites, Creation and Basic Structure of HTML Document, HTML Tags (Headings , Paragraphs, Line Break, Horizontal Line, Font, Preformatted Text, Lists, Images, Tables, Hyperlink, Form), CSS, Inserting JavaScript Code in HTML Document, JavaScript Constructs (Variables and Rules of Naming Variables, Operators, Type Casting, Decision Control Structures, Loops, Function, Array, and DOM), Installing and Configuring Apache and PHP, Creating PHP File, Overview of Variables and Constants, Output Statement in PHP, Passing Variables Between Pages (URL, Sessions, Cookies, and Forms), Accessing and Using Database in PHP, and Database, AJAX, Introduction to Service Oriented Architecture and Web Services, Designing and Implementing Web Services with SOAP and JSON.

Reference Books

1. Duckett, J. (2014). *Web Design with HTML, CSS, JavaScript and jQuery Set (Latest Edition)*. Wiley Publishing.
2. Nixon, R. (2015). *PHP: 20 Lessons to Successful Web Development (Latest Edition)*. McGraw-Hill Education Group.
3. Nixon, R. (2012). *Learning PHP, MySQL, JavaScript, and CSS: A step-by-step guide to creating dynamic websites (Latest Edition)*. O'Reilly Media, Inc.

Bibliography

1. Boronczyk, T., Naramore, E., Gerner, J., Scouarnec, Y. L., & Stolz, J. (2009). *Beginning PHP 6, Apache, MySQL 6 Web Development (Latest Edition)*. Wrox Press Ltd.