

IT2274: Web Technology

Course Prerequisites: Computer Programming, Database Management Systems, Computer Network

Course Objectives:

1. To learn the fundamental tags of HTML5 and CSS.
2. To obtain knowledge of JavaScript as client-side technology in web development.
3. To understand use of jQuery in dynamic website designing.
4. To acquire skills of server-side technologies such as PHP in web development.
5. To build user interface or front end of complex websites using react.
6. To study building the backend of web application using NodeJS framework.

Credits: 4

Teaching Scheme Theory: 2 Hours/Week

Tut: 1 Hours/Week

Lab: 2 Hours/Week

Course Relevance: Web development is the work involved in developing a website for the Internet or an intranet. Web development can range from developing a simple single static page of plain text to complex web-based internet applications (web apps), businesses, social network services and enterprise application development. Apparently in today's technology-driven society, knowing the foundations of the website design is useful. Actually, it has grown into the world's most important site for research, education, networking, as well as entertainment. Most of the jobs available in the IT industries are web technology related.

SECTION-1

Introduction: Introduction to web technology, Internet and WWW, web site planning and design issues, HTML5: structure of html document, commenting, formatting tags, list tags, hyperlink tags, image, table tags, frame tags, form tags, CSS, Bootstrap, JSON (6 Hrs)

Client Side Technologies: JavaScript: Overview of JavaScript, Data types, Control Structures, Arrays, Functions and Scopes, Objects in JS, Form validation, DOM: Introduction, DOM levels, DOM Objects, their properties and methods, Manipulating DOM (6 Hrs)

JQuery: Introduction, Loading JQuery, selecting elements, changing styles, creating elements,

appending elements, removing elements, handling events. (2 Hrs)

SECTION-2

Server Side Technologies: Introduction, Features, PHP syntax, Control structures, Functions, Arrays, String, Form Handling, File Handling, Session and Cookies, Error Handling, MySQL with PHP (6 Hrs)

React: Introduction, Architecture, Components, JSX, Class, State, Props, Events, Render function, Forms, Lists, Router, Flux. (4 Hrs)

NodeJS: Introduction, Installation of Node JS, Node JS Modules, Node Package Manager (npm), Creating Web server, File System, Express JS, Serving Static Resources, Database connectivity. (4 Hrs)

List of Tutorials: (Any Three)

- 1) Learn various HTML tags
- 2) Use of Bootstrap to design a web page
- 3) Understand use of JavaScript in form validation
- 4) Study of Cookies in PHP
- 5) Study of Session in PHP
- 6) Study of different ways of working with PHP and MySQL
- 7) Express Framework
- 8) Laravel Framework
- 9) RESTFul API
- 10) React Hooks
- 11) Node JS and relational databases
- 12) Node JS and NoSQL databases

List of Practicals: (Any Six)

- 1) Installation, configuration and understanding working of XAMPP server for local host.
- 2) Design and implement a web page to demonstrate the use of different HTML tags.
- 3) Design and develop a web page demonstrating the use of CSS tags.
- 4) Design and develop a HTML form for student registration.
- 5) Write a code for validation of student registration form using JavaScript.
- 6) Design and develop a web page to demonstrate various methods of objects in JavaScript like Array, String, Math, Date.
- 7) Design and develop a web page demonstrating various effects using jQuery.
- 8) Write a PHP program to create a simple calculator that can accept two numbers and perform operations like add, subtract, multiplication and divide. Validate input values and prompt/alerts for invalid values.
- 9) Design a dynamic web application using PHP and MYSQL as back-end to perform insert, delete, view and update operation.
- 10) Design a web page demonstrating file handling operations like open, read, write, append copy, move, delete and rename using nodeJS.
- 11) Design and implement simple website using React.

List of Projects:

1. Student Registration System
2. Tours and Travel System
3. Canteen Food Ordering and Management System.
4. Online Personal Counseling
5. Online Recruitment System
6. Farming Assistant System
7. Hospital management System

8. Hostel Management System
9. Online Event Management
10. Online Bus/Railway/Airways Booking System
11. Online Banking System

List of Course Seminar Topics:

1. Bootstrap
2. Spring Framework
3. Joomla
4. Sass
5. Java Servlets
6. Object Oriented PHP
7. Angular JS
8. VueJS
9. Django
10. Laravel

List of Course Group Discussion Topics:

1. Web Services
2. Client Side Frameworks
3. Server Side Frameworks
4. Relational and NoSQL Databases
5. AJAX
6. Client Side Technologies

7. Server Side Technologies
8. Template Engine
9. Progressive Web Apps
10. Markup Languages

List of Home Assignments:**Design:**

1. Design, Develop and Deploy social web applications using Bootstrap.
2. Design, Develop and Deploy web applications using CMS.
3. Design, Develop and Deploy web application for Electricity Billing System
4. Design, Develop and Deploy web application for department
5. Design, Develop and Deploy web application for Medical Shop

Case Study:

1. Angular JS
2. VueJS
3. Django
4. Flask
5. Wordpress

Blog:

1. Recent Web Development Trends
2. Databases for Web Developers
3. Web Services
4. Web Security
5. Web Evolution

Surveys:

1. Comparison of Web Services
2. Frameworks for Web Development
3. Scripting languages for Web Designing
4. Web Server Vs Application Server
5. Current Technologies for Web Development

Suggest an assessment Scheme:

1. Home Assignment
2. ESE
3. CVV
4. Seminar
5. Group Discussion
6. LAB-Course Assignment and Project Evaluation

Text Books: (As per IEEE format)

1. *Thomas A. Powell; “Complete reference HTML”; 4th edition, Tata McGraw-Hill Publications*
2. *Black book; “Web Technologies:HTML,JS,PHP,Java,JSP,ASP.NET,XML and AJAX” ; Dreamtech Press, 2016.*
3. *Dave Mercer, Allan Ken; “Beginning PHP 5”; Dreamtech Publications.*
4. *Martin, M.G., “Programming for Beginners: 6 Books in 1 – Swift+PHP+Java+Javascript+Html+CSS: Basic Fundamental Guide for Beginners”,*

independently published, 2018

5. Robin Nixon, *"Learning PHP, MySQL, JavaScript, CSS and HTML 5"*, 5th Edition, O'Reilly publication.

Reference Books: (As per IEEE format)

1. Jeremy McPeak & Paul Wilton, *"Beginning JavaScript"*, 5th Edition, Wrox Publication.
2. Adam Bretz & Colin J Ihrig, *"Full Stack Javascript Development with MEAN"*, SPD, ISBN-13: 978-0992461256
3. Shama Hoque *"Full-Stack React Projects"*, 1st Edition, Packt Publishing, ISBN-13 978-1788835534
4. Frank Zammetti, *"Modern Full-Stack Development"*, 1st Edition, Apress, ISBN-13 978-1484257371

MOOCs Links and additional reading material:

1. <https://www.w3schools.com>
2. <https://www.udemy.com/course/ultimate-web/>
3. <https://www.coursera.org>
4. <https://nptel.ac.in/courses/106106222>
5. <https://nptel.ac.in/courses/106106156>
6. <https://www.udemy.com/course/full-stack-web-development-2021-guide-with-nodejs-mongodb/>

Course Outcomes:

The student will be able to –

- 1) Design reliable, efficient, scalable front-end view of web pages using HTML5, CSS with Bootstrap framework.

- 2) Perform client-side web page validation and event handling using JavaScript.
- 3) Develop the web pages more dynamic and interactive using jQuery.
- 4) Deliver realistic and extensible lightweight web application using suitable server side web technology like PHP
- 5) Design and implement User Interface for complex web applications using React
- 6) Build server-side applications, real time applications, and cross platform applications using NodeJS framework

CO PO Map:

CO	Programme Outcomes												Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	3	2		3	3							1	3			
CO2	3	2	2		1							2		3		
CO3	3	2	2													
CO4	2	3	3	2											3	
CO5	3	3		2	3							2	3			
CO6	3	2		2	2				2			2				3

CO attainment levels:

CO	CO1	CO2	CO3	CO4	CO5	CO6
Level	2	3	2	4	4	5

Future Courses Mapping: Advance Web Technology, Mobile Application Development

Job Mapping: Web Developer, Full Stack Developer, UI Developer