

WEB TECHNOLOGIES
(Common to IT, CSE, CSE-AI&ML, CSE-CS and CSE-DS)

Instruction	: 3 Periods/week	Continuous Internal Evaluation	: 40 Marks
Tutorial	: -	Semester End Examination	: 60 Marks
Credits	: 3	Semester End Exam Duration	: 3 Hours

Prerequisites:

1. Must have knowledge in HTML 5 and CSS 3.
2. Must be knowledgeable on Java Technology.
3. Must be knowledgeable on any RDBMS.

Course Objectives:

- 1 : To learn a framework to create responsive web designing
- 2 : To learn the client-side script and validations along with a synchronous programming
- 3 : To introduce XML and work with data storage and interactivity using Java
- 4 : To introduce Server-side programming with Java Servlets
- 5 : To learn sending Dynamic Response from server using JSP

Unit-I–Working with CSS and its Framework

Introduction to CSS: Syntax structure, using style sheets, Box model. **CSS3:** Grid, Flexbox. Responsive Web Design using Media Queries, use of viewport, Transition, Animation.

CSS Framework: Bootstrap.

CSS Framework: Bootstrap (local and CDN usage, containers, 12 – column grid system, commonly used controls – Typography, Nav, Navbar, Carousel, Button, Card, Modal dialog, Table, forms, Breadcrumbs).

Unit-II– Client- Side Scripting Using JavaScript

JavaScript: Introduction to JavaScript, Data types, var, let, const., Control statements, Operator, Functions, fatarrows, Arrays, Objects, Destructuring, Strings, DateObjects, Events, DOM Manipulations, Regular Expressions.

Introduction to jQuery: Syntax, Selectors, Events, Effects.

Unit-III–Data storage and manipulation

XML: Syntax, namespaces, DTD, Schema, XML Document Parsing.

JDBC: Design of JDBC, JDBC Configuration, working with JDBC Statements, Scroll able and Updatable Result Sets, Rowset, MetaData, Transactions.

Unit-IV–Server-side Script ingusing Servlets

Web servers: An introduction to Web Servers, Web application structure and deployment in Tomcat. MVC Architecture, Servlet Technology: Servlets, Servlet sslife cycle, The Servlet API packages and class and interface hierarchy, Basic servlet program template, Handling requests and responses, using form parameters, Using Servlet Context and Servlet Config objects, Using initialization parameters (both context and configlevel), Session management(Cookies, HttpSession, URLRewriting, Hidden Formfields).

Unit-V–Dynamic Response using JSP

Introduction to JSP: The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, implicit objects, Using Beans in JSP Pages, Using Cookies and session for session tracking, connecting to database in JSP.

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Build a custom website with HTML, CSS and Bootstrap
- CO 2 : Demonstrate Java Script and it's a synchronous nature of execution
- CO 3 : Implement the Database Connectivity and Component Technologies like Beans.
Develop and deploy Servlet based web applications
- CO 4 : Develop Server-side programming using JSP
- CO 5 : Build a custom website with HTML, CSS and Bootstrap

Textbooks:

1. Sams Teach Yourself HTML, CSS, and JavaScript AllinOne, Julie C.Meloni, JenniferKyrmin, 3rd Edition, Pearson Publication, 2019.
2. Head First Servlets and JSP, Bryan Basham, Kathy Sierra and BertBates, 2nd Edition, O'Reilly Media, 2008.
3. Core Java® Volume II—Advanced Features, CayS. Horstmann, 10th Edition; Printice Hall Publications, 2017

References:

1. Responsive Web Design with HTML5 and CSS3, BenFrain, 2nd Edition, Packt Publishing, 2015.
2. Beginning HTML, XHTML, CSS and JavaScript, JonDuckett, WileyPublishing, Inc.,2010.
3. Core Servlets and JSPs Volume I and II, Martin Hall and Larry Brown, Pearson.
4. E-Resource: <https://www.w3schools.com/html/>
5. E-Resource: <https://developer.mozilla.org/en-US/docs/Learn/JavaScript>
6. E-Resource: <https://getbootstrap.com/>