Code: BCA-2005T (For theory) BCA-2005P (For practical)	SEC-III	Web Technologies	1L+T: 2P	2 Credits (15 hours theory and 30 hours practical)

Max Marks; Theory: 100 (Int: 25; Ext: 75); Practical: 100

Course Outcomes: Upon competition of the course, students will be able to
CO1: Understand the concepts of webpage, mark up language along with CSS
CO2: Understand the core concepts of JavaScript including functions, events, DOM manipulation, and form validation.
CO3: Apply AJAX, XML, and JSON to create dynamic and interactive web applications.

Unit	Topics	Purposed lectures
I	**Introduction to HTML** History of HTML, objectives, basic structures of HTML, header tags, body tags, paragraph tags, and formatting tags. Tags for form creation: TABLE, FORM, TEXTAREA, SELECT, IMG, IFRAME, FIELDSET, ANCHOR, AUDIO, and VIDEO. Lists in HTML, introduction to the DIV tag, NAVBAR design. **Introduction to CSS** Types of CSS, selectors, and responsiveness of a web page. **Introduction to Bootstrap** Downloading/linking Bootstrap, using Bootstrap classes, understanding the grid system in Bootstrap. Bootstrap typography, Jumbotron, button group, Glyphicons, pagination, pager, list group, and carousel. **Introduction to WWW** Protocols and programs, applications and development tools, web browsers, DNS, web hosting providers. Setting up Windows/Linux/Unix web servers, web hosting in the cloud, and types of web hosting.	7
II	**Introduction to JavaScript** Functions and events, Document Object Model (DOM) traversal using JavaScript. Output systems in JavaScript: alert, throughput, input box, and console. Variables and arrays in JavaScript, date, and string handling. **Manipulating CSS through JavaScript** Form validation techniques: required validator, length validator, and pattern validator. **Advanced JavaScript** JavaScript error handling, JavaScript Object-Oriented Programming (OOP), JavaScript libraries and frameworks, JavaScript Browser Object Model (BOM), and ES6 features. **Combining HTML, CSS, and JavaScript** Handling events and buttons, controlling the browser. **Introduction to AJAX** Purpose, advantages, disadvantages, AJAX-based web applications, and alternatives to AJAX. **Introduction to XML** Uses, key concepts, DTD & schemas, XSL, XSLT, XSL elements, and transforming XML using XSLT. **Introduction to XHTML** Key concepts and features. **Introduction to JSON** Keys and values, types of values, arrays, and objects.	8
Lab Programs	**PART – A** 1. Create your class time table using table tag. 2. Design a Webpage for your college containing a description of courses, departments, faculties, library, etc., using list tags, href tags, and anchor tags. 3. Create a web page using Frame with rows and columns where you will have a header frame, left frame, right frame, and status bar frame. On clicking in the left frame, information should be displayed in the right frame. 4. Create your resume using HTML, using text, link, size, color, and lists. 5. Create a Web Page of a supermarket using internal CSS. 6. Use inline CSS to format the resume that you have created. 7. Use external CSS to format your timetable created. 8. Use all the CSS (inline, internal, and external) to format the college web page that you have created. 9. Write an HTML program to create your college website for mobile devices. **PART – B** 1. Write an HTML/JavaScript page to create a login page with validations. 2. Develop a simple calculator for addition, subtraction, multiplication, and division operations using JavaScript. 3. Use regular expressions for validations in the login page using JavaScript. 4. Write a program to retrieve data from a text file and display it using AJAX. 5. Create an XML file to store Student Information like Register Number, Name, Mobile Number, DOB, and Email-ID. 6. Create a DTD for the XML file created.	

	7. Create an XML schema for the XML file created. 8. Create an XSL file to convert the XML file to an XHTML file. 9. Write a JavaScript program using a switch case. 10. Write a JavaScript program using any five events. 11. Write a JavaScript program using built-in JavaScript objects. 12. Write a program for populating values from JSON text. 13. Write a program to transform JSON text into a JavaScript object.	

Text Books:

1. Laura Lemay, *Mastering HTML, CSS & JavaScript Web Publishing*, BPB Publications, 2016.
2. Thomas A. Powell, *The Complete Reference HTML & CSS*, Fifth Edition, 2017.
3. Web Technologies, Shruti Kohli, BPB Publications
4. Web Technologies: Black Book, Dreamtech Press

Reference Books:

1. Silvio Moreto, *Bootstrap 4 By Example*, e-book, 2016.
2. Tanweer Alam, *Web Technologies*, Khanna Book Publishing, 2011.
3. Web Technologies, Jeffery CJackson, Pearson
4. Web Technologies, Uttam K.Roy, Oxford Higher Education
5. Web Technologies, Kogent Looring Solutions, Dreamtech