



SRI VENKATESWARA UNIVERSITY

II Year Syllabus for 4-Year UG Honours in B.Sc. (Data Science) as Major in consonance with Curriculum framework w.e.f. AY 2026-27

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	III	5	Database Management Systems	3	3
			Database Management Systems Lab	2	1
		6	Data Science with R	3	3
			Data Science With R lab	2	1
		7	Web Technologies	3	3
			Web Technologies Lab	2	1

SEMESTER-III
COURSE 7: WEB TECHNOLOGIES

Theory Credits: 3 3 hrs/week

Course Objectives

1. Understand the principles of web design and distinguish between web and desktop application architectures.
2. Develop static web pages using HTML elements, attributes, and multimedia integration techniques.
3. Style web pages effectively using CSS, including layout control, responsive design, and UI enhancements.
4. Implement dynamic behaviors and form validations using JavaScript and the Document Object Model (DOM).
5. Explore JSON and jQuery for handling structured data and simplifying client-side scripting in web development.

Course Outcomes

At the end of the course, students will be able to:

1. Design and structure HTML-based webpages incorporating text, images, tables, forms, and multimedia content.
2. Apply CSS styling rules to manage layout aesthetics, interactivity, and responsiveness across devices.
3. Use JavaScript for string manipulation, event handling, arrays, object operations, and basic validation.
4. Employ client-side scripting to enhance form functionality, create dialog interactions, and add animations via events.
5. Parse JSON data and use jQuery to simplify DOM manipulation, AJAX calls, and build dynamic, data-driven web applications.

Unit 1.HTML:

Introduction to web designing, difference between web applications and desktop applications, introduction to HTML, HTML structure, elements, attributes, headings, paragraphs, images, tables, lists, blocks, symbols, embedding multi-media components in HTML, HTML forms

Unit 2.CSS:

CSS home, introduction, syntax, CSS combinators, colors, background, borders, margins, padding, height/width, text, fonts, tables, lists, position, overflow, float, pseudo class, pseudo elements, opacity, tool tips, image gallery, CSS forms, CSS counters.

Unit 3.Java Script:

What is DHTML, JavaScript, basics, variables, operators, statements, string manipulations, mathematical functions, arrays, functions. objects, regular expressions, exception handling.

Unit 4. Client-Side Scripting:

Accessing HTML form elements using Java Script object model, basic data validations, data format validations, generating responsive messages, opening windows using java script, different kinds of dialog boxes, accessing status bar using java script, embedding basic animative features using different keyboard and mouse events.

Unit 5. JSON and jQuery

Introduction to JSON: Need for data exchange formats, JSON syntax, JSON vs XML, parsing JSON, creating JSON objects and arrays, accessing nested JSON data, reading/writing JSON in JavaScript. Working with jQuery: Introduction to jQuery, selectors, filters, DOM manipulation, event handling, animations, effects, and chaining.

Text Book(s)

1. Web Programming: Building Internet Applications, Chris Bates, Wiley, Second Edition.
2. An Introduction to Web Design plus Programming, Paul S. Wang, Sanda S. Katila, Thomson.
3. Learning jQuery – Jonathan Chaffer, Karl Swedberg, Packt Publishing.
4. JSON at Work – Tom Marrs, O'Reilly Media.

Reference Books

1. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
2. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks, Springer.
3. Schaum's Easy Outline: HTML, David Mercer, McGraw Hill Professional.
4. jQuery in Action, Bear Bibeault, Yehuda Katz, Manning Publications.
5. Beginning JSON, Ben Smith, Apress.

Activities:

Outcome: Design and structure HTML webpages with text, images, tables, forms, and multimedia.

Activity: Create a personal profile webpage with all these elements.

Evaluation Method: Checklist (10 pts) - correct tags, structure, working forms/media.

Outcome: Apply CSS rules for layout, aesthetics, interactivity, and responsiveness. **Activity:** Style the profile page using colors, fonts, Flexbox/Grid, hover effects, and media queries.

Evaluation Method: Rubric (10 pts) - visual appeal, responsiveness, selector/layout usage, clean code.

Outcome: Use JavaScript for string manipulation, events, arrays/objects, and validation. **Activity:** Add form validation, greeting message, array/object display, and button click handling.

Evaluation Method: Demo & testing (10 pts) - correct syntax, validation, event handling, output behavior.

Outcome: Employ client-side scripting for dialogs, animations, and event-based interactions.

Activity: Add show/hide sections, confirmation dialog on submit, and animations via mouse/keyboard events. **Evaluation Method:** Live demo (10 pts) - smooth interaction, correct event listeners, proper animations, good UX.

Outcome: Parse JSON and use jQuery for DOM manipulation, AJAX, and dynamic data display.

Activity: Fetch JSON via jQuery AJAX, render as table/list, add filter/sort, and compute summaries.

Evaluation Method: Demo & checklist (10 pts) - JSON parsing, jQuery usage, filter/sort functionality, error handling.: Submission of simulation results with explanation. Evaluate the report on a 10-point scale.

SEMESTER-III
COURSE 7: WEB TECHNOLOGIES

Practical Credits: 1 2 hrs/week

List of Experiments

1. Create an HTML document with the following formatting options:
(a) Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag
2. Create an HTML document which consists of:
(a) Ordered List (b) Unordered List (c) Nested List (d) Image
3. Collect any ten images of your choice. Using table tag, align the images as follows:



4. Create a form using HTML which has the following types of controls:
(a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
5. Embed a calendar object in your web page.
6. Create a form that accepts the information from the subscriber of a mailing system.
7. Apply CSS to design a student registration form (use different selectors, colors, borders, spacing).
8. Create a responsive webpage using CSS Flexbox/Grid.
9. Add hover effects and transitions on images and buttons using CSS.
10. Write a JavaScript program to perform string operations (reverse, substring, count vowels).
11. Create a JavaScript form validation program (check email format, password length, required fields).
12. Develop a webpage that displays greetings based on the current time (morning, afternoon, evening).
13. Use JavaScript to manipulate arrays and objects (add, delete, sort, search).
14. Fetch and display student information stored in a JSON object on a webpage.
15. Fetch real-time weather data from an open API (e.g., OpenWeatherMap) in JSON format and display temperature, humidity, and conditions dynamically on a webpage.
16. Use jQuery to simplify DOM manipulation (hide, show, fade, slide, toggle).

SRI VENKATESWARA UNIVERSITY::TIRUPATI
B.Sc. Data Science Honours
II year III Semester
COURSE 7: WEB TECHNOLOGIES

MODEL QUESTION PAPER

Time: **3 Hours**

Max. Marks: **75**

PART-A

Answer any **FIVE** of the following. Each Question Carries 3 marks.

(5X3=15)

1. Short answer question from unit-I
2. Short answer question from unit-I
3. Short answer question from unit-II
4. Short answer question from unit-II
5. Short answer question from unit-III
6. Short answer question from unit-III
7. Short answer question from unit-IV
8. Short answer question from unit-IV
9. Short answer question from unit-V
10. Short answer question from unit-V

PART-B

Answer **FIVE** of the following. Each Question Carries 12 marks.

(5X12=60)

11. a) Essay question from Unit-I
OR
b) Essay question from Unit-I
12. a) Essay question from Unit-II
OR
b) Essay question from Unit-II
13. a) Essay question from Unit-III
OR
b) Essay question from Unit-III
14. a) Essay question from Unit-IV
OR
b) Essay question from Unit-IV
15. a) Essay question from Unit-V
OR
b) Essay question from Unit-V