

# **Front-End Development – SD203**

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| **Prerequisite**: Semester 1 or Semester 1 PLAR | **Duration**: 16 weeks |
| **Course Length**: Four (4) hours per week  (2 Lecture hours plus 2 lab hours) | **Pass Criteria**: Pass or Pass Outstanding |

**Textbook/Reference Material**: Learning Path: HTML5 Fundamentals, 2015, by Rachel Roumeliotis, Published by O’Reilly Media, Inc., ISBN: N/A

**Assessment**: Quantitative Assessment Points (QAPs) 50%

Midterm Sprint 25%

Final Sprint 25%

**Course Objectives**:

This course aims to teach students fundamental skills for developing websites and web applications using modern HTML and CSS.

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

* Use their skills to employ best practices for layout and styling using modern approaches and technologies such as CSS grid
* Utilize critical skills necessary to approach a multitude of web interface design challenges using both plain HTML and React

**General Course Topics\***:

* Develop HTML code for web pages using HTML5 content tags
* Develop the HTML portion of a website showcasing data using lists and tables
* Develop multi-media web pages using images, videos
* Write CSS for an HTML project using both inline styling and a linked stylesheet
* Write CSS for a web page that uses position and display attributes, as well as flexbox and CSS grid
* Write responsive CSS for a web page using media queries to accommodate screens of different resolutions
* Implement animations
* Modify HTML code to include both inline JavaScript and external .js files
* Write JavaScript code for a web page that modifies HTML elements. DOM (Document Object Model)
* Write JavaScript and HTML code to execute JavaScript functions from HTML
* Write HTML source code that makes use of an externally compiled React code file and allows the code to render into the page

**Course Layout\*:**

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| **Week #** | **Front-End Development** |
| 1 | Review of basics discussed previously during “Introduction to Web Development” along with some new topics added. |
| 2 | Semantical elements and their importance in Accessibility issues. Audio and video elements embedding along with YouTube contents adding to the webpage. |
| 3 | Review of Cascading Style Sheet (CSS) concepts. Different types of CSS and types of selectors and their proper usage. |
| **QAP 1** | |
| 4 | Advanced topics in CSS like display algorithms, flexbox model, CSS grid and basic animations in CSS. |
| 5 | Review of JavaScript concepts. Discussion of variables, control structures, looping and basic datatypes in JavaScript. |
| **QAP 2** | |
| 6 | Advanced topics of ES5 ES6 like arrow functions etc |
| 7 | Classical Object-Oriented side of JavaScript like prototypal inheritance |
| 8 | **Midterm Sprint and Midterm Break** |
| 9 |
| 10 | Classes and static members in ES5 ES6. |
| **QAP 3** | |
| 11 | DOM Introduction |
| 12 | Details of DOM discussed. DOM Tree modifications, detailed discussions on nodes, textnodes, siblings etc. |
| **QAP 4** | |
| 13 | Event Handling in DOM. Applying JS functions against events generated by the users, browsers and other code of the applications. |
| 14 | Timer functions: setInterval(), setTimeOut() etc. |
| 15 | **Final Sprint** |
| 16 |

**Evaluative Criteria**:

Participation in class discussions

Completion of QAPs

Midterm Sprint 1 (Weeks 8 and 9)

Final Sprint 1 (Weeks 15 and 16)

**NOTE**: Grades assigned are PASS, PASS OUTSTANDING, FAIL. To pass this course requires at least a Pass on all modules. To receive a Pass Outstanding in a module requires a mastery of skills in at least 50% of the learning outcomes for the module. A Pass Outstanding for the course is achieved when the student achieves a Pass Outstanding in all modules.

*\* General course topics and course layout are subject to change.*