CIS A223: JAVASCRIPT 2

Item	Value
Curriculum Committee Approval Date	12/04/2024
Top Code	070900 - World Wide Web Administration
Units	2 Total Units
Hours	54 Total Hours (Lecture Hours 27; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

For students who already know how to create web pages using HTML and understand JavaScript, this course covers advanced features of Front-End development. Topics include closures, advanced Javascript OOP patterns, utilizing jQuery, manipulating Document Object Model (DOM), and writing AJAX scripts. ADVISORY: CIS A129 and CIS A171. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Students will be able to implement programs in new and emerging APIs such as theSelectors API, Web Workers, and Cross-Document Messaging.
2. Students will write web applications that utilize latest HTML5 scripting, DOM manipulations, and event handling using Javascript.

Course Objectives

- 1. Define the Document Object Model (DOM).
- 2. Control the position and the display mode of elements in a Web page.
- 3. Trace and debug errors using combined JavaScript techniques.
- 4. Define AJAX and create AJAX scripts.
- 5. Design and modify dynamic using JavaScript Toolkits
- 6. Handle multiple types of JavaScript events and understand event flows.
- 7. Define closures and advanced Object Oriented Programming patterns.

Lecture Content

1. Javascript in HTML (Review) a. Brief introduction to Javascript b. Javascript Implementations c. Language Basics i. Syntax ii. Variables iii. Data types iv. Operators v. Statements vi. Functions 2. Variables, Scope and Memory a. Primitive and Reference Types b. Execution Context and Scope c. Garbage Collection 3. Reference Types a. The Object Type b. The Array Typec. The Date Typed. The RegExp Type e. The Function Type f. Primitive Wrapper Types g. Singleton Built in Objects 4. Advanced OOP a. Understanding Objects b. Object Creation c. Inheritance 5. Function Expressions: a. Recursion b. Clousures c. Mimicking Block Scope d. Private Variables 6. Browser Object Model a. The window Object b. The location Object c. The Navigator Object d. The screen object e. The history object 7. The document Object Model a. Hierarchy of Nodes b. Working with the DOM 8. DOM extensions: a. Understanding the Selectors API b. Using HTML5 DOM extensions c. Working with proprietary DOM extensions 9. DOM Levels 2 and 3 a. Changes to the DOM introduced in Levels 2 and 3 b. The DOM API for manipulating styles c. Working with DOM traversals and ranges 10. Events: a. Understanding event flow b. Working with event handler c. Examining the different types of events 11. Scripting Forms: a. Understanding form basics b. Text box validation and interactions c. Working with other form controls 12. Graphics with Canvas a. Understanding the element b. Drawing simple 2D graphics c. 3D drawing with WebGL 13. HTML5 Scripting a. Using cross document messaging b. Drag and drop APIs c. Working with audio and video 14. JSON and Ajax a. Syntax b. Parsing and serialization c. The XMLHttpRequest Object d. XMLHttpRequest level 2 e. Progress Events f. Cross Origin Resource Sharing

Lab Content

Advanced OOP Functions BOM DOM Extensions DOM Levels 2 and 3 Events Scripting Forms Graphics with Canvas JSON and Ajax

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)

Instructional Techniques

Lecture, demonstrations, and laboratory.

Reading Assignments

Students should spend a minimum of two hours per week reading assigned chapters in the textbook.

Writing Assignments

Students will spend a minimum of two hours per week writing codes to create Web pages.

Out-of-class Assignments

Creating dynamic Web pages.

Demonstration of Critical Thinking

Quizzes, computer projects, and exams consisting of multiple choice and true/ false questions.

Required Writing, Problem Solving, Skills Demonstration

Student performance on quizzes and Web page design projects will be used to determine proficiency.

Eligible Disciplines

Computer information systems (computer network installation, microcomputer ...: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience. Computer information systems (computer network installation, microcomputer ...: Any bachelor's degree and two years

of professional experience, or any associate degree and six years of professional experience. Computer information systems (computer network installation, microcomputer ...: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Frisbie, Matt. Professional Javascript for Web Developers , 5th. ed. Indianapolis: Wiley, 2023