GROSSMONT COLLEGE

 OFFICIAL COURSE OUTLINE

Curriculum Committee Approval: 04/20/2021

GCCCD Governing Board Approval: 05/18/2021

# COMPUTER SCIENCE INFORMATION SYSTEMS 135 – JAVASCRIPT PROGRAMMING

 1. Course Number Course Title Semester Units

 CSIS 135 JavaScript Programming 3

Semester Hours

 2 hours lecture 32-36 hours 64-72 outside of class hours 3 hours laboratory 48-54 hours

144-162 total hours

2. Course Prerequisites

 None

 Corequisites

 None

 Recommended Preparation

 A “C” grade or higher or “Pass” in CSIS 133 or equivalent.

 3. Catalog Description

 An introductory course in JavaScript programming focusing on creating dynamic web pages. The course will include embedding JavaScript in HTML, event-handling, writing, and calling JavaScript functions, as well as exploring jQuery and its relationship to JavaScript.

 4. Course Objectives

 The student will:

 a. Describe the history of JavaScript and the Document Object Model.

 b. Analyze the Document Object Model and the JavaScript/HTML interface.

 c. Write custom JavaScript functions.

 d. Describe objects, methods, and object-oriented design principles.

 e. Use JavaScript events to add interactivity to web pages.

 f. Read, write, modify, and disseminate JavaScript.

 g. Perform form-input validation.

 h. Create, retrieve, and modify cookies.

 i. Combine objects, properties, methods, and event handlers using object-oriented design principles.

 j.  Write basic programming logic structures to make web page behavior adapt to different conditions.

 k. Explore and comprehend the concepts and usage of jQuery in an HTML5 document.

 5. Instructional Facilities

 Standard classroom

 6. Special Materials Required of Student

 Electronic storage device.

7. Course Content

# Introduction to JavaScript.

#  1) What is JavaScript?2) What JavaScript can and can't do.3) How JavaScript and HTML work within the DOM.4) Browser support for JavaScript.5) Where to place scripts in the HTML document.6) Creation and inclusion of an external JavaScript code file.

 7) What jQuery is and what is the relationship to JavaScript.

b.   Object-oriented programming.
1)     What are objects and their properties and methods?
2)     Dot syntax and Object-oriented design principles.

3)     The calling of JavaScript methods and functions.
4)     Event-handler placement and linking to actions.
5)     Variable creation and types.
6)    The passing of values to methods and functions.
7)    The returning of values from methods and functions.

c.  The Document Object Model.
1)     DOM history.
2)     Object hierarchy.
3)    The process of reading and changing browser and document properties.

d.   Looping and decision structures.
1)     While, for, and do while.
2)     If statements and else
3)     Switch / case structure
4)     Complex conditional statements: And, Or, Not.

e.   Strings and string manipulation.
1)     The process of concatenation and writing to a document
2)     Implementation of reading strings and utilizing string methods.

f.    Arrays.
1)     Browser built-in arrays: Frames, Links, images, form options & elements, plug-ins, and applets.
2)     Creation of arrays.
3)     The accessing of array data and the loading of data into arrays.

g.   JavaScript events and scripting event handlers.

1)  Mouse events.

2)  Form events.

3)  Document events.

h.   Functional application of JavaScripts.

     1)  Set and read cookies.

     2)  Form validation.

     3)  Implementation of math functions and operators.

     4)  The manipulation of images.

     5)   Incorporation of dates, time and timers.

i.    Server-side JavaScript.

j.    jQuery

      1)     Understand the concept of jQuery.

      2)     Practical usage of jQuery to solve a real-world problem.

 8. Method of Instruction

1. Online Computer-based reading assignments
2. Lecture and demonstration in a traditional classroom or via electronic means
3. Hands-on practice in either a dedicated or a virtual lab environment
4. Topical discussion of current JavaScript and Web Development trends and issues

9. Methods of Evaluating Student Performance

1. Written quizzes and exams that measure students’ ability to describe JavaScript principles and capabilities, analyze a scenario and choose among the alternatives.
2. Scenario-based lab activities that measure students’ ability to create JavaScript programs, troubleshoot/analyze bugs that arise, investigate potential alternatives, and implement corrective action to achieve a determined result.
3. Practical application-based examinations that measure students’ ability to evaluate, design and implement effective JavaScript solutions to achieve the correct results.

10. Outside Class Assignments

 a. Textbook reading assignments.

 b. Problem-solving exercises.

 c. Troubleshoot/analyze imposed security problems, investigate potential alternatives, and implement corrective action to achieve a determined result.

 d. Programming projects utilizing the Best Practices in current JavaScript programming.

 e. Complete and pass section quizzes and course final exam.

 f. Read and analyze instructor assigned case studies; post analysis and comments to the class discussion board.

 g. Respond to other students’ analysis and comments on the class discussion board.

11. Representative Texts

 a. Representative Text(s)

Delamater, Mary and Rubalcava, Zac. *Murach’s JavaScript and jQuery* (4th Edition). Fresno, CA. Mike Murach and Associates, 2020.

ISBN 978-1-943872-62-2

 b. Supplementary texts and workbooks:

 None

Addendum: Student Learning Outcomes

 Upon completion of this course, our students will be able to do the following:

1. Learn and understand the basic structures of JavaScript.
2. Combine multiple structures to understand how they interact programmatically to solve problems.
3. Analyze complex problems to formulate processes, determine JavaScript structures required, and combine these structures to provide the required inputs and outputs to solve the problem.