Lecture Contact Hours: 32-36; Homework Hours: 64-72; Total Student Learning Hours: 96-108
Laboratory Contact Hours: 48-54; Homework Hours: 0; Total Student Learning Hours: 48-54

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

<u>COMPUTER AND INFORMATION SCIENCE 215 – JAVASCRIPT WEB PROGRAMMING</u>

2 hours lecture, 3 hours laboratory, 3 units

Catalog Description
JavaScript, the most popular web development language, works with HTML and CSS to add interactivity, special effects, and functionality to web pages. This introduction to JavaScript focuses on using JavaScript to develop practical front-end web components such as menus, slide shows, accordions, tabs, form validators, and date pickers. The foundation is set with JavaScript coding and syntax basics and quickly moves on to manipulating web page elements. Students then learn to work with JQuery and jQuery UI, free JavaScript libraries commonly used by web developers to simplify JavaScript programming. The course includes practical examples and hands-on assignments.

Prerequisite
None

Recommended Preparation
"C" grade or higher or "Pass" in CIS 211 or equivalent or one year verifiable HTML and CSS coding experience

Entrance Skills
Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:
1) Apply file management best practices to organize, name, backup, and upload files.
2) Read, write, analyze, and debug HTML and CSS to create standards compliant web pages that include formatted text, internal and external links, images, tables, forms, and lists.
3) Use CSS to control presentation, including fonts, colors, backgrounds, layout, and list-based navigation.
4) Demonstrate critical problem-solving skills in the debugging of programs.
5) Trace the flow of execution and values of all variables through a complex program.

Course Content
1) Overview of web development
   a. Web applications and client-side processing
   b. Components of a JavaScript application
   c. HTML and CSS review
   d. Document Object Model (DOM)
   e. Using an Integrated Development Environment (IDE) and a browser to test and debug JavaScript applications
2) Overview of JavaScript
   a. Including JavaScript in an HTML document
   b. JavaScript syntax for statements, identifiers, comments, objects, methods, and properties
   c. Working with JavaScript data (numeric expressions and variables, string and Boolean variables)
   d. Coding control statements (if statements and loops)

3) Objects, Functions and Events
   a. Using window, document, Textbox, Number, Date, and String objects

    b. Creating and using anonymous and named functions with local and global variables
    c. Event handling
4) Testing and Debugging
    a. Common errors
    b. Debugging with browser add-ons, validation, and IDEs
5) Arrays
    a. Creating and using arrays
    b. Loops and arrays
    c. Array object methods
6) Scripting the DOM with JavaScript
    a. DOM scripting properties and methods (Node, Document, and Element interfaces)
    b. DOM scripting for links and images
    c. Practical applications (hide/show content, image swap, slide show)
7) jQuery overview
    a. Introduction
    b. jQuery basics (coding selectors, calling methods, using event methods)
    c. Useful selectors, methods, and event methods
8) jQuery effects and animations
    a. Using effects
    b. Using animation
    c. Practical applications (hide/show content, image swap, slide show)
9) DOM manipulation with jQuery
    a. DOM manipulation methods
    b. Methods for working with styles and positioning
    c. DOM traversal methods
10) Form validation with jQuery and JavaScript
11) jQuery UI
    a. Introduction
    b. Building and using a jQuery UI download
    c. jQuery UI widgets

Course Objectives
Students will be able to:
1) Use an IDE to code and debug JavaScript programs, including statements, expressions, variables, and operators.
2) Use functions and events to respond to and validate user input.
3) Use arrays and loops to work with data.
4) Use DOM properties and methods to manipulate web page elements.
5) Use JavaScript, jQuery, and jQuery UI to develop practical front-end web components such as FAQs, menus, slide shows, accordions, tabs, and date pickers.

Method of Evaluation
A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.
1) Hands-on exercises that require students to code and upload web pages that use valid HTML and CSS.
2) Quizzes and exams that measure students' ability to use coding terminology and explain coding concepts.
3) Practical exams that measure the students' ability to use computer applications to solve real-life web design problems.
4) Projects that require students to integrate production skills and design best practices to create technically proficient and well-designed web sites.

Special Materials Required of Student
1) File storage system
2) Access to web-based course material and software specified in syllabus

Minimum Instructional Facilities
Computer lab with Internet access, appropriate software

Method of Instruction
1) Lecture and demonstration
2) Hands-on practice
3) Assignments

Out-of-Class Assignments
1) Read textbook and assignment instructions
2) Participate in online discussion
3) Complete assignments and online quizzes
4) Review online resources, including videos

Texts and References
1) Required (representative example): Angularjs, JavaScript, and jQuery All in One, Sams Teach Yourself, Pearson; 2016.
2) Supplemental: None

Exit Skills
Students having successfully completed this course exit with the following skills, competencies and/or knowledge:
1) Use an IDE to code and debug JavaScript programs, including statements, expressions, variables, and operators.
2) Use functions and events to respond to and validate user input.
3) Use arrays and loops to work with data.
4) Use DOM properties and methods to manipulate web page elements.
5) Use JavaScript, jQuery, and jQuery UI to develop practical front-end web components such as FAQs, menus, slide shows, accordions, tabs, and date pickers.

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
1) Integrate JavaScript/JQuery with HTML and CSS to create a site that meets 80% of the technical, organizational, structural, and presentation requirements outlined in a detailed scoring rubric based on the course content and objectives.