Quality Endorsed Unit

This unit does not form part of a regulated qualification.

Unit Title: Web Design: An Introduction to JavaScript Programming

Unit Reference Number: CJ1/4/WR/002

Level: 4

Credit Value: 9

Minimum Guided Learning Hours: 90

Learning Outcome (The Learner will):		Assessment Criterion (The Learner can):	
1.	Understand the syntax and use of the JavaScript programming language.	1.1	Integrate JavaScript into an HTML document using the <script> tag
		1.2	Build a script for Centigrade to Fahrenheit temperature conversion
		1.3	Build a script to include string concatenation, converting strings to numbers, and string manipulation
2.	Understand and use JavaScript events and event handlers.	2.1	Use the full range of event handlers in practical settings
		2.2	Write functions to process events as they occur
		2.3	Write a script to process an information request form which includes the following event handlers: onLoad and onUnLoad, onSubmit and onReset, onMouseOver and onMouseOut, and onFocus and onBlur
3.	Understand and use some of JavaScript's more advanced features.	3.1	Construct a Hide & Seek game using global variables random number generation, event handlers, functions for hiding and checking, if… then… else conditional logic, and window methods including close, reload and alert
		3.2	Implement a "for" loop to generate numbers – 10 to + 10 on clicking a button
		3.3	Implement a "while" loop to perform the same function as 3.2 above

The intellectual property rights remain with Open Awards.

		3.4	Create an array to store and retrieve numbers
4.	Understand and use the Document Object Model (DOM), including window and document objects, form objects, timer objects, and accessing document properties such as the title, URL, and background colour.	4.1	Design and construct a Health Insurance Questionnaire, which includes a form to enter personal details such as name, age, and address, and some questions regarding hereditary disease, lifestyle, exercise, and diet
		4.2	Construct a scrolling text box by directly accessing the text box element and dynamically changing its value every 100 milliseconds
5.	Be able to handle errors, such as syntax, type, and range errors, using try, catch and “finally”, and throw techniques, and utilise debugging aids.	5.1	Construct a “What Am I?” game, where a series of blurred images of animals are displayed and the user must try to guess what each animal is. When an image is clicked, the un-blurred image is displayed momentarily so the user can check if the guess was correct
		5.2	Use the Console Log and breakpoints to debug the game code
6.	Be able to build a Minefield game and a “Matching Pairs” game.	6.1	Implement arrays, functions, math methods including random number generation, if … then… else control logic, and “while” and “for” loops, dynamically assign a class to the grid cells, and implement sound objects
		6.2	Construct a test plan with a range of specific test cases and successfully debug the Minefield JavaScript code
		6.3	Build and debug the “Matching Pairs” game reinforcing the JavaScript knowledge learned to-date
7.	Understand and use the HTML5 Application Programming Interfaces (API’s).	7.1	Create a script to drag and drop an image from one location to another
		7.2	Create a script to store and retrieve data within the browser
		7.3	Create a script to send and receive messages between documents
		7.4	Create a script to manipulate the browser history
		7.5	Create a script to implement a Google map showing the current geographical position of the user
		7.6	Create a script to dynamically draw three nested rectangles containing a pair of three

The intellectual property rights remain with Open Awards.

			nested circles inside the innermost rectangle
8.	Understand and implement the most widely- used jQuery and jQuery User Interface features.	8.1	Create a simple jQuery Menu du Jour app, which utilises the jQuery ready method, the hide() and fadeIn() methods, the css() method to dynamically change the background colour, the on() method to specify events and reactive functions, the each() method to mimic the JavaScript loop behaviour, and the mouseOver and click events
		8.2	Create scripts to (i) implement basic animation effects using the hide(), slideDown(), delay(), and fadein() methods to give the appearance of gradually loading up the page elements at half-second intervals, (ii) implement the animate () method to dynamically change CSS properties, such as opacity and padding, using the speed, easing, and complete parameters to create a range of effects, (iii) implement the hide() and show () methods on the text box form element, and (iv) implement the width() and height() methods to change the dimensions of a box, and implement the offset() and position() methods to change the position of a box on a page
		8.3	Create a number of scripts to demonstrate the full range of jQuery User Interface features and the jQuery UI Toolkit
9.	Understand and use AJAX, JavaScript Object Notation (JSON), function closure, prototypes, cookies, and event listeners.	9.1	Construct a script to send and receive data to/from an external source using the XMLHttpRequest() method
		9.2	Construct a script to read and write JSON data
		9.3	Construct a script to include a closure example
		9.4	Construct a script to define a human prototype
		9.5	Construct a script to implement a cookie containing employee data
		9.6	Construct a script to add and remove event listeners
10.	Be able to build a cricket game using a jQuery tabbed interface with a jQueryUI theme to the specification provided.	10.1	Construct the Submit Teams and Toss Up functions
		10.2	Construct the Get Ready to Play function

The intellectual property rights remain with Open Awards.

10.3	Construct the Bowl A Ball function
10.4	Construct the Appeal to Umpire function
10.5	Construct the Innings Complete and Game Over functions

The intellectual property rights remain with Open Awards.