Level 5 Diploma in eCommerce & Web Design (901)
176 Credits

Unit: JavaScript Programming	**Guided Learning Hours:** 240
Exam Paper No.: 4	**Number of Credits:** 24
Prerequisites: Good knowledge of HTML	**Corequisites:** A Pass or better in Diploma in Information Technology or equivalence.
Aim: The unit covers a quick overview of HTML, client-side programming, variables, functions, event handlers, objects, form validation, image and form objects, frames, windows and cookies. JavaScript is the backbone of many interactive web pages. It is an integrated part of all modern web browsers, including Internet Explorer and FireFox. Learners explore useful methods and properties of the browser Document Object Model (DOM) and programming concepts, including conditional statements, looping constructs, user functions, user objects, arrays, data structures, string manipulation, and regular expressions.	
Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.
Special Requirements: This is a hands-on unit, hence use of computers is mandatory.	

Intended Learning Outcomes:	Assessment Criteria:
1. The purpose of JavaScript in Web Design; JavaScript tags and program layout.	1.1 Design simple JavaScript programs 1.2 Demonstrate using input and output statements 1.3 Describe basic memory concepts 1.4 Demonstrate using arithmetic operators 1.5 Describe the precedence of arithmetic operators 1.6 Describe how to write decision-making statements 1.7 Demonstrate how to use relational and equality operators.
2. JavaScript program control, algorithm, sequential execution; repetition structure, how decisions are expressed, Javascript variables, arithmetic operators and data types.	2.1 Define basic problem-solving techniques 2.2 Develop algorithms through the process of top-down, stepwise refinement 2.3 Demonstrate using the **if** and **if…else** selection statements to choose among alternative actions 2.4 Demonstrate using the **while repetition** statement to execute statements in a script repeatedly 2.5 Demonstrate counter-controlled repetition and sentinel-controlled repetition 2.6 Demonstrate using the increment, decrement and assignment operators.
3. Loop counter, increment and iteration of loops, multiple-selection, logical operators and logical negation.	3.1 Demonstrate using the **for** and **do…while** repetition statements to execute statements in a program repeatedly 3.2 Describe multiple selection using the switch selection statement 3.3 Demonstrate using the break and continue program-control statements 3.4 Demonstrate using the logical operators.

4. The technique of divide and conquer in programming modules in JavaScript.	4.1	Demonstrate how to construct program modularly from small pieces called functions
	4.2	Demonstrate how to create new functions
	4.3	Define the mechanisms used to pass information between functions
	4.4	Describe simulation techniques that use random-number generation
	4.5	Describe how the visibility of identifiers is limited to specific regions of programs.
5. Arrays and the process of creating, declaring, initialising arrays and analysing different kinds of arrays: single-dimensional, multidimensional.	5.1	Define the array data structure
	5.2	Describe the use of arrays to store, sort and search lists and tables of values
	5.3	Demonstrate how to declare an array, initialise an array and refer to individual elements of an array
	5.4	Define how to pass arrays to functions
	5.5	Demonstrate how to search and sort an array
	5.6	Demonstrate how to declare and manipulate multi-dimensional arrays.
6. JavaScript objects, how JavaScript uses objects to perform tasks and the implementation of cookies.	6.1	Describe object-based programming terminology and concepts
	6.2	Describe encapsulation and data hiding
	6.3	Examine and identify the value of object orientation
	6.4	Define how to use the JavaScript objects Math, String, Date, Boolean and Number
	6.5	Describe how to use the browser's document and window objects
	6.6	Demonstrate how to use cookies.

Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in JavaScript Programming with a weighting of 100%.

Recommended Learning Resources: JavaScript Programming

Text Books	• The Book of JavaScript: A Practical Guide to Interactive Web Pages by Dave Thau. ISBN-10: 1886411360 • JavaScript: The Definitive Guide by David Flanagan. ISBN-10: 0596101996 • Beginning JavaScript, 3rd Edition (Programmer to Programmer) by Paul Wilton and Jeremy McPeak. ISBN-10: 0470051515
Study Manuals	BCE produced study packs
CD ROM	Power-point slides
Software	Internet Explorer