SOFTWARE DEVELOPMENT

Unit Reference Number	R/617/2269
Unit Title	Software Development
Unit Level	4
Number of Credits	20
Total Qualification Time	200 hours
Mandatory / Optional	Mandatory
SSAs	06.1 ICT practitioners
Unit Grading Structure	Pass

Unit Aims

The aim of this unit is to introduce learners to the fundamental concepts of programming with the emphasis being laid on the whole of the software development process, to include the environment in which software is developed and the tools that assist in this process. Learners are given the choice to use a programming language of their choice.

Learning Outcomes and Assessment Criteria

Learning Outcomes- The learner will:	Assessment Criteria- The learner can:
1. Understand the software development lifecycle.	1.1 Explain the importance of each stage in traditional software lifecycle approaches. 1.2 Evaluate alternative software development approaches.
2. Understand the process of software development.	2.1 Evaluate software development techniques. 2.2 Evaluate the use of different software development tools. 2.3 Evaluate software testing methodologies. 2.4 Describe software deployment techniques. 2.5 Evaluate methods of reviewing system performance.
3. Be able to deploy a functional business application to meet business requirements.	3.1 Produce a software development plan from a system design. 3.2 Develop software to meet business requirements. 3.3 Test and deploy software. 3.4 Evaluate the software against business requirements.

Indicative contents

Topic	Course coverage
Learning Outcome 1	● Algorithm definition: Writing algorithms to carry out an operation, e.g. Bubble sort. ● The relationship between algorithms and code. ● The generation process of code; the roles of the pre-processor, compiler and linker, interpreter. ● Characteristics of code: Definitions of: data types (the role of

	constants/variables), methods (including input/output), control structures, iteration, scope, parameter passing, classes, inheritance and events. ● Key components of an Integrated Development Environment (IDE). ● Principles of the traditional Systems Development Life Cycle (SDLC) models, including Waterfall, Prototyping, and Spiral.
Learning Outcome 2	● Analyse a business-related problem and assess possible solutions: Discuss and produce a problem definition statement to highlight and describe the issues that need to be addressed. ● Research and consider possible solutions and predict the overall success of the application. ● Produce a Software Design Document: Review and discuss the value of Software Design Documents with regards to application development. ● Evaluate your possible solutions and synthesise the ideas into a single document that identifies and attempts to solve the business-related problem. ● Research and use information relating to software testing to create a suitable test plan for your business application.
Learning Outcome 3	● Work as a small team to plan and prepare your business application: Peer-review and debate your development plan by effectively communicating and defending the ideas in your Software Design Document. ● Discuss differences with regards to the possible strengths and weakness of each Software Design Document. ● Modify your Software Design Document to reflect any new insights or considerations. ● Prepare and produce a functional business application: Use your Software Design Document with your preferred design and development methodology and your selected tools and techniques to develop a functional business application. Create and quality check appropriate support documents for your application. ● Undertake a critical review of the performance and development of your application against all identified factors and any adopted design and development methodologies. ● Evaluate the overall strengths and weaknesses of your business application against its Software Design Document and initial requirements. Discuss and plan in detail possible revisions (including implementation) with regard to improving your application's performance.

Assessment

To achieve a 'pass' for this unit, learners must provide evidence to demonstrate that they have fulfilled all the learning outcomes and meet the standards specified by all assessment criteria.

Learning Outcomes to be met	Assessment criteria to be covered	Type of assessment	Summary of quality/quantity
LO1, LO2 , LO3	All ACs under LO1, LO2, LO3	Coursework + Computer Lab	2500 words

		documentation	

Indicative Reading list

Richard Murch R *The Software Development Lifecycle - A Complete Guide*

Dooley J F (2017) *Software Development, Design and Coding: With Patterns, Debugging, Unit Testing, and Refactoring*. A Press.