Comparison document

(Version 3.0 April 2016 compared to previous version)

Software Design and Development (Advanced Higher) Unit

SCQF: level 7 (12 SCQF credit points)

Unit code: H223 77

> The purpose of this document is to give a quick, visual guide to any amendments or clarifications made during the revision process.

Unit outline

The general aim of this Unit is for learners to develop a deep knowledge and understanding of advanced concepts and processes relating to software design and development, including the use of standard algorithms, structured data types and a range of programming constructs. Learners will develop skills in developing well-structured, complex modular programs through practical tasks using appropriate programming languages. Through investigative and practical work, learners will gain an understanding of the similarities and differences in different contemporary programming paradigms.

Learners who complete this Unit will be able to:

1   Explain how well-structured, complex modular programs work, drawing on understanding of programming constructs, algorithms and data integration
2   Develop well-structured, complex modular programs
3   Investigate ~~and report on~~ some contemporary programming paradigms

This Unit is a mandatory Unit of the Advanced Higher Computing Science Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in *Unit Assessment Support*.

The *Course Assessment Specification* for the Advanced Higher Computing Science Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Advanced Higher Computing Science Course.

Recommended entry

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

♦ Software Design and Development (Higher) Unit
♦ Higher Computing Science Course

Equality and inclusion

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Support Notes.*

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

1 Explain how well-structured, complex modular programs work, drawing on understanding of programming constructs, algorithms and data integration by:

1.1 Describing the ~~role and~~ purpose of a range of structured data types
1.2 Describing how a range of complex standard algorithms work
1.3 Describing ~~how programs process stored data~~the purpose of a range of programming constructs and how they work

Outcome 2

The learner will:

2 Develop well-structured, complex modular programs by:

2.1 Selecting and using combinations of programming constructs and standard algorithms
2.2 Selecting and using appropriate structured data types
2.3 Interfacing programs with stored data

Outcome 3

The learner will:

3 Investigate ~~and report on~~ some contemporary programming paradigms by:

3.1 Investigating simple object-oriented programs
3.2 ~~Comparing object-oriented and one other programming paradigm~~

Evidence requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

Evidence for Outcome 1 may be oral or written. Evidence for Outcome 2 may be derived from a single extended software development task, or from a number of shorter tasks. Evidence for Outcome 3 may be derived from a number of tasks; the report may be presented in a variety of formats.

Exemplification of assessment is provided in *Unit Assessment Support.* Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes.*

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

2   Numeracy

2.3   Information handling

3   Health and wellbeing

3.1   Personal learning

4   Employability, enterprise and citizenship

4.2   Information and communication technology (ICT)

5   Thinking skills

5.3   Applying
5.4   Analysing and evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work.* The level of these skills should be at the same SCQF level as the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes.*

Administrative information

Published: April 2016̶5̶ (version 3̶2̶.0)

Superclass: CB

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
2.0	Changes to Outcome 2 and Assessment Standards in all three Outcomes.\n\nRevision to Unit outline to reflect changes accordingly.	Qualifications Development Manager	April 2015
3.0	Outcome 1: small change to the wording of assessment standard 1.1 and change to the wording of assessment standard 1.3.\nOutcome 3: deletion of assessment standard 3.2 and evidence requirements for this Outcome.	Qualifications Manager	April 2016

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Note: readers are advised to check SQA's website: www.sqa.org.uk to ensure they are using the most up-to-date version of the Unit Specification.

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