Draft
National Unit Specification

Unit title: Software Design and Development (National 4)

SCQF: level 4 (9 SCQF credit points)

Unit code: to be advised

Unit outline

The general aim of this Unit is to develop, in the learner, basic knowledge, understanding and practical problem solving skills in software development through appropriate software development environments. Learners will develop their programming skills by implementing practical solutions and showing they have an understanding of how these programs work. They will also develop an awareness of emerging and innovative technologies relating to software development.

Learners who complete this Unit will be able to:

1 Develop short programs using a software development environment
2 Use understanding of basic concepts in software development environments to explain how programs work
3 Produce a short factual report on an emerging and innovative software development technology

This Unit is a mandatory Unit of the Computing and Information Science (National 4) Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes* which provides 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 the *National Assessment Resource*.

The Added Value Unit Specification for the Computing and Information Science (National 4) Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Computing and Information Science (National 4) 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:

- Access 3 Computing and Information Science Course or relevant component Units
- Access 3 Numeracy

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Unit. Further information on relevant experiences and outcomes will be given in the *Unit Support Notes*.

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 Develop short programs using a software development environment by:

1.1 Selecting and using expressions, sequence, selection and iteration
1.2 Selecting and using appropriate simple data types, such as numeric (integer) and string
1.3 Testing digital solutions using supplied test data
1.4 Identifying and rectifying errors in programs

Programs should include at least one construct and one data type.

Outcome 2

The learner will:

2 Use understanding of basic concepts in software development environments to explain how programs work by:

2.1 Describing the purpose of a range of programming constructs
2.2 Describing how these constructs work
2.3 Reading and interpreting code

A range of programming constructs should include expressions, sequence, selection and iteration.

Outcome 3

The learner will:

3 Produce a short factual report on an emerging and innovative software development technology, by investigating:

3.1 An appropriate development
3.2 The impact of the development on the environment or society

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 of the assessment standards for Outcome 1 may be derived from many software development tasks; formal documentation is not expected or required. Evidence for Outcomes 2 may be oral or written. The report for Outcome 3 need not be written, but may be presented visually or in some other format.

Exemplification of assessment will be provided in the *National Assessment Resource*. 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

2.1 Number processes
2.3 Information handling

4 Employability, enterprise and citizenship

4.2 Information and communication technology (ICT)

5 Thinking skills

5.3 Applying

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 of 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: August 2011 (draft version 1.0)

Superclass: to be advised

History of changes

Version	Description of change	Authorised by	Date