Group Award Specification for:

NPA in Software Development at SCQF level 6

Group Award Code: GL4W 46

Validation date: June 2016

Date of original publication: June 2016

Version: 02 (October 2019)

Contents

1 Introduction

This document was previously known as the Arrangements document. The purpose of this document is to:

- assist centres to implement, deliver and manage the qualification
- provide a guide for new staff involved in offering the qualification
- inform course managers, teaching staff, assessors, learners, employers and HEIs of the aims and purpose of the qualification
- provide details of the range of learners the qualification is suitable for and progression opportunities.

The Scottish Government's *ICT Skills Investment Plan* has a number of key objectives and this National Progression Award (NPA) is designed to address the first two of these:

- **Increased demand for ICT and digital technologies**
  Professionals are needed both within the industry and in other industries to enable growth ensuring Scotland remains competitive in a global market.

- **Promoting new entry routes into the industry**
  It is important to raise awareness of the range of routes into the sector including transition training and Modern Apprenticeships (MA).

This NPA is primarily designed for use within a Foundation Apprenticeship (FA) in IT. This is part of a wider FA initiative by *Skills Development Scotland* to increase the range of work-based learning opportunities for pupils in the senior phase of secondary education. It provides seamless progression into a full MA, but can also be used as a precursor to the Professional Development Award (PDA) suite in Software Development at SCQF levels 7, 8 and 9.

It is anticipated that this award will also be of interest to schools and colleges on its own merits, independent of the MA, since it provides a specialised qualification in an area of high interest with good employment prospects.

As the title indicates, this NPA is entirely focussed on software development including applications and websites. There is a complementary NPA in Professional Computer Fundamentals that focuses on hardware and system support.

2 Qualification structure

2.1 Structure

The qualification is available at **SCQF level 6.**

The qualification consists of **three** mandatory Units at SCQF level 6 (21 SCQF points). There are no optional Units.

Mandatory Units

4 code	2 code	Unit title	SQA credits	SCQF credit points	SCQF level
H6S9	46	Computing: Applications Development	1	6	6
F3T2	12	Computing: Authoring a Website	1	6	6
*J27C	76	Software Design and Development	1.5	9	6

3 Aims of the qualification

The principal aim of the qualification is to provide learners with programming skills and prepare them for employment as entry-level computer programmers.

3.1 General aims of the qualification

1 To develop knowledge and skills relating to software development.
2 To develop computational thinking skills including problem solving.
3 To develop transferable skills including Core Skills.
4 To develop employment skills.
5 To develop an appreciation of the contemporary IT sector.
6 To enable progression within the Scottish Credit and Qualification Framework (SCQF).

3.2 Specific aims of the qualification

7 To develop an understanding of the software development process.
8 To develop skills in computer programming for applications and web development.
9 To understand the roles within a software development team.
10 To apply some of the concepts of computational thinking including abstraction, transformation and decomposition.
11 To appreciate the importance of data security during the software development process.
12 To prepare learners for entry into employment as an Apprentice software developer.
13 To prepare learners for software development learning at a higher level.

4 Recommended entry to the qualification(s)

Entry to this qualification is at the discretion of the centre. The following information on prior knowledge, skills, experience or qualifications that provide suitable preparation for this qualification has been provided by the Qualification Design Team as guidance only.

No previous knowledge of computer programming is necessary but all learners will be expected to have some skills in the use of standard IT systems and application software (ie word processing, spreadsheet, graphics, etc.). However, learners would benefit from having attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications or Units (this is not an extensive list and other Units may also be helpful).

C716 75 *National 5 Computing Science Course* or relevant component Units
H6S9 45 *Computing: Applications Development*
H2P5 11 *Programming for Mobile Devices*
F917 11 *Computer Games: Development*
H613 45 *Computing: Website Design Fundamentals*
F182 11 *Computing: Website Design and Development*
H614 45 *Computing: Website Graphics*

4.1 Core Skills entry profile

The Core Skill entry profile provides a summary of the associated assessment activities that exemplify why a particular level has been recommended for this qualification. The information should be used to identify if additional learning support needs to be put in place for learners whose Core Skills profile is below the recommended entry level or whether learners should be encouraged to do an alternative level or learning programme.

Core Skill	Recommended SCQF entry profile	Associated assessment activities
Communication	5	Identify significant information, ideas, and supporting details in a written communication of non-fiction. Understanding requirements for program functionality.
Numeracy	5	Decide on the types of numerical calculations to be carried out. Program design and testing.
Information and Communication Technology (ICT)	5	Use of standard application software in research and producing program documentation.
Problem Solving	5	Developing solutions to programming tasks.
Working with Others	5	Working as part of a software development team.

5 Additional benefits of the qualification in meeting employer needs

This qualification was designed to meet a specific purpose and what follows are details on how that purpose has been met through mapping of the Units to the aims of the qualification. Through meeting the aims, additional value has been achieved by linking the Unit standards with those defined in National Occupational Standards. In addition, significant opportunities exist for learners to develop more generic skills, known as Core Skills, through doing this qualification.

5.1 Mapping of qualification aims to Units

Code	Unit title	Aims												
		1	2	3	4	5	6	7	8	9	10	11	12	13
H6S9 46	Computing: Applications Development	x	x	x	x	x	x		x		x		x	x
F3T2 12	Computing: Authoring a Website	x	x	x	x	x	x		x		x		x	x
H223 76	Software Design and Development	x	x	x	x	x	x	x		x	x	x	x	x

5.2 Mapping of National Occupational Standards (NOS) and/or trade body standards

Code	Unit title	National Occupational Standard	
H6S9 46	Computing: Applications Development	ESKITP5022	ESKITP5023
F3T2 12	Computing: Authoring a Website	ESKITP5022	ESKITP5023
H223 76	Software Design and Development	ESKITP5022	ESKITP5023

The relevant Standards are listed below. They can be found at:

https://www.thetechpartnership.com/standards-and-quality/it-professional-standards/

ESKITP5022 Perform software development activities under direction (L2)

ESKITP5023 Software Development Role (L3)

There is extensive overlap between the contents of the Units and the Standards.

ESKITP5022 — Perform software development activities under direction

Code	Unit title	National Occupational Standard																			
		P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**	**K8**	**K9**	**K10**	**K11**	**K12**	**K13**	**K14**
H6S9 46	Computing: Applications Development			X	X	X	X	X	X	X				X	X		X	X			X	
F3T2 12	Computing: Authoring a Website			X		X	X	X		X					X		X	X				
H223 76	Software Design and Development	X		X		X	X	X	X		X	X			X		X	X	X	X	X	
		K15	**K16.1**	**K16.2**	**K16.3**	**K16.4**	**K17.1**	**K17.2**	**K17.3**	**K17.4**	**K17.5**	**K18**										
H6S9 46	Computing: Applications Development	X	X			X	X	X	X													
F3T2 12	Computing: Authoring a Website	X	X			X	X	X	X													
H223 76	Software Design and Development	X	X			X	X	X	X	X		X										

ESKITP5023 — Software Development Level 3 Role

Code	Unit title	National Occupational Standard																			
		P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P11**	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**	**K8**	**K9**	**K10**
H6S9 46	Computing: Applications Development				X	X				X	X			X					X			
F3T2 12	Computing: Authoring a Website				X	X				X	X								X			
H223 76	Software Design and Development	X			X	X		X		X	X		X	X		X		X	X			
		K11	**K12**	**K13**	**K14**	**K15**	**K16**	**K17**	**K18**	**K19**	**K20**	**K21**	**K22**	**K23**	**K24**	**K25**	**K26**	**K27**	**K28**	**K29**	**K30**	**K31.1**
H6S9 46	Computing: Applications Development		X				X	X	X	X			X	X	X	X	X					
F3T2 12	Computing: Authoring a Website		X				X	X	X	X			X	X	X	X	X					
H223 76	Software Design and Development		X				X	X	X	X			X	X	X	X	X					

ESKITP5023 — Software Development Level 3 Role (cont)

Code	Unit title	National Occupational Standard															
		K31.2	**K31.3**	**K31.4**	**K31.5**	**K31.6**	**K32.1**	**K32.2**	**K32.3**	**K32.4**	**K32.5**	**K33.1**	**K33.2**	**K33.3**	**K33.4**	**K34**	**K35**
H6S9 46	Computing: Applications Development					X	X	X	X								
F3T2 12	Computing: Authoring a Website					X	X	X	X								
H223 76	Software Design and Development					X	X	X	X			X					X

Key:

P — Performance Criteria
K — Knowledge and understanding

For further information refer to the original National Occupational Standard documents available at:

ESKITP5022v2
http://nos.ukces.org.uk/PublishedNos/ESKITP5022v2.pdf#search=eskitp5022

ESKITP5023
http://nos.ukces.org.uk/PublishedNos/ESKITP5023.pdf#search=eskitp5023

5.3 Mapping of Core Skills development opportunities across the qualification

This Group Award will provide opportunities for learners to develop Core Skills in *Problem Solving* and *Information and Communication Technology (ICT)*.

Unit code	Unit title	Communication			Numeracy		ICT		Problem Solving			Working with Others	
		Written (Reading)	Written (Writing)	Oral	Using Number	Using Graphical Information	Accessing Information	Providing/Creating Information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	Working Co-operatively with Others	Reviewing Co-operative Contribution
H6S9 46	Computing: Applications Development						S	S	E	E	E		
F3T2 12	Computing: Authoring a Website						S	S	S	S	S		
H223 76	Software Design and Development							E					

If the Core Skills/Core Skill components are embedded (E) within the Unit learners who achieve the Unit will automatically have their Core Skills profile updated on their certificate. If the Core Skills/Core Skills components are signposted (S), this means that learners will be developing aspects of Core Skills throughout teaching and learning approaches, but not enough to attract automatic certification.

Achievement of the H223 76 *Software Design and Development* Unit gives automatic certification of the Core Skill component: *Providing and Creating Information* at SCQF level 6.

Achievement of the H6S9 46 *Computing: Applications Development* Unit gives automatic certification of the complete Core Skill: *Problem Solving* at SCQF level 6.

There are also opportunities to develop aspects of Core Skills, which are highlighted in the Support Notes of each of the respective Unit specifications.

5.4 Assessment Strategy for the qualification

The following table summarises recommended assessment methods for each Unit. The information is extracted from the Unit specifications where clear information is supplied.

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
Computing: Applications Development	Practical Open-book			Cognitive Open-book	
Computing: Authoring a Website	Cognitive Closed-book Controlled conditions	Practical Open-book			
Software Design and Development	Cognitive Oral/written	Practical — Software development task(s)			

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.

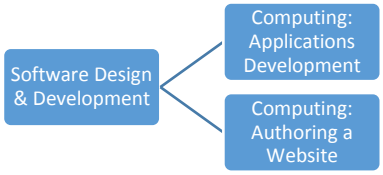
There are **no** time limitations on the production of evidence.

6 Guidance on approaches to delivery and assessment

6.1 Sequencing/integration of Units

The recommended sequence of delivery is as follows.

An alternative approach would be to deliver the *Software Design and Development* Unit first, and run the remaining Units in parallel.



6.2 Recognition of Prior Learning

SQA recognises that learners gain knowledge and skills acquired through formal, non-formal and informal learning contexts.

In some instances, a full Group Award may be achieved through the recognition of prior learning. However, it is unlikely that a learner would have the appropriate prior learning and experience to meet all the requirements of a full Group Award.

The recognition of prior learning may **not** be used as a method of assessing in the following types of Units and assessments:

- Course and/or external assessments
- Other integrative assessment Units (which may or not be graded)
- Certain types of assessment instruments where the standard may be compromised by not using the same assessment method outlined in the Unit
- Where there is an existing requirement for a licence to practice
- Where there are specific health and safety requirements
- Where there are regulatory, professional or other statutory requirements
- Where otherwise specified in an Assessment Strategy

More information and guidance on the *Recognition of Prior Learning* (RPL) may be found on our website **www.sqa.org.uk**.

The following sub-sections outline how existing SQA Unit(s) may contribute to this Group Award. Additionally, they also outline how this Group Award may be recognised for professional and articulation purposes.

6.2.1 Articulation and/or progression

This qualification is designed to be part of a FA which articulates to the MA in IT and Telecommunications. It will also provide a good basis for progression to higher level qualifications in software development including the variants of Higher National Certificate/Diploma (HNC/HND) Computing and particularly to HND Computing: Software Development.

6.3 Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres wishing to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment, as specified in the Evidence Requirements, are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at: www.sqa.org.uk/e-assessment.

The knowledge and understanding of all the Units can be assessed through the SOLAR— **www.sqasolar.org.uk.** If your centre is not already on SOLAR you can complete the form on the SOLAR website and get immediate access. The SOLAR website contains training materials and answers many of the common questions you may have. If you would like to know more contact the SOLAR team on **solar@sqa.org.uk**.

If evidence is produced by means of an e-portfolio, learners are required to collate a portfolio of evidence which may take a variety of digital forms, eg text, graphics, webpages, video clips, audio clips. This may be stored in an appropriate online platform.

6.4 Support materials

The Assessment Support Packs are available on the SQA secure website for all three of the qualification Units.

6.5 Resource requirements

Staff delivering these qualifications should possess high-level qualifications in software development or related areas.

Learners should have exclusive access to a modern PC, with relevant software tools installed, and access to contemporary software development environments.

There are a number of proprietary and open-source on-line resources for software development including tutorials. These are subject to rapid change and evolution and are therefore not listed here.

7 General information for centres

Equality and inclusion

The Unit specifications making up this Group Award have been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners will be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Internal and external verification

All instruments of assessment used within this/these qualification(s) should be internally verified, using the appropriate policy within the centre and the guidelines set by SQA.

External verification will be carried out by SQA to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external verification can be found in *SQA's Guide to Assessment* **(www.sqa.org.uk/GuideToAssessment)**.

8 Glossary of terms

Embedded Core Skills: is where the assessment evidence for the Unit also includes full evidence for complete Core Skill or Core Skill components. A learner successfully completing the Unit will be automatically certificated for the Core Skill. (This depends on the Unit having been successfully audited and validated for Core Skills certification.)

Finish date: The end of a Group Award's lapsing period is known as the finish date. After the finish date, the Group Award will no longer be live and the following applies:

- candidates may not be entered for the Group Award
- the Group Award will continue to exist only as an archive record on the Awards Processing System (APS)

Lapsing date: When a Group Award is entered into its lapsing period, the following will apply:

- the Group Award will be deleted from the relevant catalogue
- the Group Award specification will remain until the qualification reaches its finish date at which point it will be removed from SQA's website and archived
- no new centres may be approved to offer the Group Award
- centres should only enter candidates whom they expect to complete the Group Award during the defined lapsing period

SQA credit value: The credit value allocated to a Unit gives an indication of the contribution the Unit makes to an SQA Group Award. An SQA credit value of 1 given to an SQA Unit represents approximately 40 hours of programmed learning, teaching and assessment.

SCQF: The Scottish Credit and Qualification Framework (SCQF) provides the national common framework for describing all relevant programmes of learning and qualifications in Scotland. SCQF terminology is used throughout this guide to refer to credits and levels. For further information on the SCQF visit the SCQF website at **www.scqf.org.uk**.

SCQF credit points: SCQF credit points provide a means of describing and comparing the amount of learning that is required to complete a qualification at a given level of the Framework. One National Unit credit is equivalent to 6 SCQF credit points. One National Unit credit at Advanced Higher and one Higher National Unit credit (irrespective of level) is equivalent to 8 SCQF credit points.

SCQF levels: The level a qualification is assigned within the framework is an indication of how hard it is to achieve. The SCQF covers 12 levels of learning. HNCs and HNDs are available at SCQF levels 7 and 8 respectively. Higher National Units will normally be at levels 6–9 and Graded Units will be at level 7 and 8. National Qualification Group Awards are available at SCQF levels 2–6 and will normally be made up of National Units which are available from SCQF levels 2–7.

Subject Unit: Subject Units contain vocational/subject content and are designed to test a specific set of knowledge and skills.

Signposted Core Skills: refers to opportunities to develop Core Skills arise in learning and teaching but are not automatically certificated.

History of changes

It is anticipated that changes will take place during the life of the qualification and this section will record these changes. This document is the latest version and incorporates the changes summarised below. Centres are advised to check SQA's APS Navigator to confirm they are using the up to date qualification structure.

NOTE: Where a Unit is revised by another Unit:

- No new centres may be approved to offer the Unit which has been revised.
- Centres should only enter candidates for the Unit which has been revised where they are expected to complete the Unit before its finish date.

Version Number	Description	Date
2	**Revision of unit code:** Unit code is updated for the following unit: Software Design and Development H223 76 (J27C) The unit content and assessment for all of the units is unchanged	25/09/19

Acknowledgement

SQA acknowledges the valuable contribution that Scotland's centres have made to the development of this qualification.

9 General information for learners

This National Progression Award focuses on computer programming. It has been developed to introduce you to coding.

The aims of the qualification include:

- introduce you to the software development process
- teach you to write routine computer programs
- show how software is developed commercially
- improve your computational thinking and problem solving skills.

It consists of three National Units and lasts for 140 hours. The three Units are:

1 Software Design and Development

Introduces the basic concepts of designing, developing and testing software

2 Computing: Applications Development

Focusses on developing general application software, extending the scope of the software development.

3 Computing: Authoring a Website

Introduces the concepts required to develop software as part of a website.

No previous knowledge or experience of computer programming is necessary since the qualification covers all of the required knowledge and skills.

Assessment consists of practical work and some testing of your knowledge and understanding. The focus of the qualification is the acquisition of practical skills.

Once you gain this qualification you will know how to create small computer programs to solve routine problems. This qualification is part of the Foundation Apprenticeship in IT. After completing this qualification you could progress to employment or a range of Computing qualifications including the HND Software Development.