Next Generation Higher National Educator Guide

Higher National Certificate Computing

Qualification code: GT6G 47

This qualification is available in a restricted delivery model from academic session 2025

This guide provides information about the Higher National Certificate (HNC) to ensure consistent and transparent assessment year on year. It is for lecturers and assessors, and contains all the mandatory information you need to deliver and assess the HNC.

You must read it alongside the Grading Pack.

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Contents

Purpose of the qualification

Higher National Certificate (HNC) Computing develops learners' ability to meet the demands of employers in the computing sector and adapt to a changing world. It offers a broad introduction to the subject area through mandatory core learning, while allowing learners to gain skills and experience through a selection of optional units in computing and information technology (IT) specialisms, such as cyber security and data science.

Learners can demonstrate a sound knowledge of the basic concepts of computing and communicate this accurately and appropriately through teamworking and problem solving. The qualification lays the foundation for further progression to computing and IT qualifications at SCQF level 8, and for articulation to other programmes of study.

Structure

Higher National Certificates (HNCs) are at SCQF level 7 and are made up of 120 SCQF credit points (15 SQA credits). HNCs must incorporate at least 80 credit points (10 SQA credits) at SCQF level 7.

HNC Computing includes two mandatory units, comprising 56 SCQF credit points (7 SQA credits) together with optional units, comprising 64 SCQF credit points (8 SQA credits).

To gain the qualification, learners must achieve both mandatory units and sufficient credits from the optional units to accumulate 120 SCQF credit points (15 SQA credits).

Framework

The HNC is made up of mandatory and optional units. Learners must complete all the mandatory units and 8 SQA credits (64 SCQF credit points) from the optional units.

Mandatory units

Unit code	Unit title	SQA credits	SCQF credit points	SCQF level
J893 47	Computing Foundations	3	24	7
J6BD 47	Professional Practice in Computing	4	32	7

Optional units

Unit code	Unit title	SQA credits	SCQF credit points	SCQF level
J693 47	Artificial Intelligence	1	8	7
J68W 47	Big Data	1	8	7
J68X 47	Blockchain	1	8	7
J68Y 47	Cloud Computing	2	16	7
J7S2 47	Computer Programming: Applied Mathematics	1	8	7
J68L 47	Computer Science	2	16	7
J89A 47	Client Operating Systems	2	16	7
J68N 47	Cyber Security	2	16	7
J690 47	Data Flow	1	8	7
J68R 47	Data Science	2	16	7
J8FK 47	Database Design Fundamentals	1	8	7
J691 47	Emerging Technologies and Experiences	1	8	7
J692 47	Internet of Things	1	8	7
J68S 47	Network Infrastructure	2	16	7
J68V 47	Software Development	2	16	7
J6BB 47	Web Development	2	16	7
J7N3 47	Work-based Learning	3	24	7

The framework provides an opportunity for learners to progress their learning in a specific sub-discipline, such as:

- cyber security
- data science
- network infrastructure
- software development
- web development

Learners who want to progress to a Higher National Diploma (HND) in a specific domain, or enter an identified job market, could benefit by selecting options that would facilitate their progression. For example, a learner who intends to progress to HND Software Development could choose the software development units (Software Development at SCQF level 7 and Software Development at SCQF level 8), comprising 5 credits, leaving a free choice for the remaining 3 credits.

Learners may prefer to keep their options open by selecting from the broad range of options in the framework.

See the ‘Approaches to delivery and assessment’ section for more information.

Aims of the qualification

General aims

1. Develop understanding of current trends in computing and their application for the benefit of society and the economy.
2. Develop understanding of the principles and concepts that underpin a specialist discipline.
3. Provide practical experience in the application of theory to a range of real-world contexts.
4. Develop awareness of legal and ethical obligations, including those relating to diversity and inclusion.
5. Develop academic competencies that enable continuous lifelong learning and professional development.
6. Enable progression through the SCQF, including progression to degree-level study.
7. Develop meta-skills that complement technical and professional knowledge and skills.
8. Develop Learning for Sustainability skills, knowledge, understanding and values.

Specific aims

1. Develop understanding of current advances in a specialist discipline and how these provide benefit for society and the economy.
2. Develop a range of specialist knowledge and skills in computing and its applications, including its hardware and software components.
3. Develop competence in comparing the specifications for computing hardware systems and their software.
4. Develop competence in the use of computer systems in a safe, ethical and effective manner while protecting the environment.
5. Prepare for employment in the design, implementation and testing of computing solutions.

6. Build confidence and competence in communicating computing ideas and solutions to stakeholders.
7. Enable progression to further study of computing or related topics at SCQF level 8 and beyond.

Who is this qualification for?

The qualification is suitable for learners who work in, or want to work in, IT, computing and related digital industries. It is particularly relevant for learners progressing from secondary school and aiming to progress to more advanced qualifications in computing specialisms. It is also well-suited to individuals seeking to change career into roles that require a sound understanding of the concepts and technologies that underpin computing applications.

The qualification is also suited to individuals who require re-skilling or up-skilling through government schemes for economic recovery and support of priority sectors.

Entry to this qualification is at your centre's discretion. However, we recommend that learners have one or more of the following:

- any two relevant SQA National Courses at SCQF level 6, together with three passes at SCQF level 5 in appropriate subjects
- an SQA National Certificate in Computing or IT at SCQF level 6
- an SQA National Progression Award (NPA) in Computing or IT at SCQF level 6, together with 3 passes at SCQF level 5 in appropriate subjects
- a Scottish Vocational Qualification (SVQ) at level 2 or 3 in IT Professionals or other relevant subjects

Different combinations of relevant SQA National Qualifications, National Courses, Vocational Qualifications and equivalent qualifications from other awarding bodies may also be acceptable, including vendor qualifications at an appropriate level.

Mature learners with suitable work experience may be accepted for entry, provided the awarding centre believes that the learner is likely to benefit from carrying out the qualification.

Recognising prior learning

SQA recognises that learners gain knowledge and skills through formal, non-formal and informal learning contexts. Formal learning is learning certificated by a recognised awarding or professional body. Non-formal learning includes learning such as employers' in-house training courses. Informal learning is learning based on experience from a variety of environments that is not formally assessed.

It is unlikely that a learner would have the appropriate prior learning and experience to meet all the requirements of a full HNC.

You can find more information and guidance about the recognition of prior learning on SQA's website.

Articulation and progression

Learners who complete this qualification could go on to:

- other qualifications in computing or related areas
- further study, employment and/or training
- HND Computer Science
- HND Data Science
- HND Networking and Infrastructure
- HND Software Development
- other HND qualifications
- BSc Computer Science or related disciplines

Alternatively, learners could progress to employment in a technician-level role, such as junior software developer or technical support.

Credit transfer arrangements

Centres can make decisions about transferring credit. They can transfer credit if the subject-related content of the units is broadly equivalent. Centres should consider the currency of a learner's achievement before transferring credit.

Recommended Core Skills entry profile

Learners should have the following Core Skills at the stated SCQF levels before starting this qualification. This information can help identify learners who may need additional support.

Core Skill	Recommended SCQF entry profile
Communication	level 5
Numeracy	level 5
Information and Communication Technology (ICT)	level 5
Problem Solving	level 5
Working with Others	level 5

How the qualification meets employer and higher education institution needs

This qualification is designed in collaboration with employers, higher education institutions (HEIs), practitioners and professional bodies to meet the sector need.

The following tables show how the qualification can benefit employers and HEIs by equipping learners with the necessary skill set:

- Table 1 shows how units map to the aims of the qualification.
- Table 2 shows how the units map to National Occupational Standards (NOS).
- Table 3 shows the assessment strategy for the qualification.

Table 1: mapping qualification aims to units

General aims

Key: aim is directly relevant to unit (X), aim is optional in this unit (O), aim is not applicable to this unit (N/A)

Unit code	Unit title	Aim 1	Aim 2	Aim 3	Aim 4	Aim 5	Aim 6	Aim 7	Aim 8
J693 47	Artificial Intelligence	X	X	X	X	X	X	X	X
J68W 47	Big Data	X	X	X	X	X	X	X	X
J68X 47	Blockchain	X	X	X	X	X	X	X	X
J89A 47	Client Operating Systems	N/A	X	X	X	X	X	X	N/A
J68Y 47	Cloud Computing	X	X	X	X	X	X	X	X
J7S2 47	Computer Programming: Applied Mathematics	N/A	X	N/A	N/A	X	X	N/A	X
J68L 47	Computer Science	X	X	X	X	X	X	X	O
J68N 47	Cyber Security	X	X	X	X	X	X	X	X

Unit code	Unit title	Aim 1	Aim 2	Aim 3	Aim 4	Aim 5	Aim 6	Aim 7	Aim 8
J690 47	Data Flow	X	X	X	X	X	X	X	N/A
J68R 47	Data Science	X	X	X	X	X	X	X	X
J8FK 47	Database Design Fundamentals	X	X	X	X	X	X	X	O
J893 47	Computing Foundations	X	X	X	X	X	X	X	O
J691 47	Emerging Technologies and Experiences	X	X	X	X	X	X	X	X
J692 47	Internet of Things	X	X	X	X	X	X	X	X
J68S 47	Network Infrastructure	X	X	X	X	X	X	X	O
J6BD 47	Professional Practice in Computing	X	X	X	X	X	X	X	X
J68V 47	Software Development	X	X	X	X	X	X	X	O
J6BB 47	Web Development	X	X	X	X	X	X	X	O
J7N3 47	Work-based Learning	N/A	N/A	X	X	X	N/A	X	X

Mapping qualification aims to units

Specific aims

Key: aim is directly relevant to unit (X), aim is optional in this unit (O), aim is not applicable to this unit (N/A)

Unit code	Unit title	Aim 1	Aim 2	Aim 3	Aim 4	Aim 5	Aim 6	Aim 7
J693 47	Artificial Intelligence	X	X	X	X	X	X	X
J68W 47	Big Data	X	X	X	X	X	X	X
J68X 47	Blockchain	X	X	X	X	X	X	X
J89A 47	Client Operating Systems	X	X	N/A	X	X	N/A	X
J68Y 47	Cloud Computing	X	X	X	X	X	X	X
J7S2 47	Computer Programming: Applied Mathematics	N/A	N/A	N/A	N/A	X	N/A	X
J68L 47	Computer Science	X	X	X	X	X	X	X
J68N 47	Cyber Security	X	X	X	X	X	X	X
J690 47	Data Flow	X	X	X	X	X	X	X

Unit code	Unit title	Aim 1	Aim 2	Aim 3	Aim 4	Aim 5	Aim 6	Aim 7
J68R 47	Data Science	X	X	X	X	X	X	X
J8FK 47	Database Design Fundamentals	X	X	N/A	X	X	X	X
J893 47	Computing Foundations	X	X	X	X	X	X	X
J691 47	Emerging Technologies and Experiences	X	X	X	X	X	X	X
J692 47	Internet of Things	X	X	X	X	X	X	X
J68S 47	Network Infrastructure	X	X	X	X	X	X	X
J6BD 47	Professional Practice in Computing	X	X	X	X	X	X	X
J68V 47	Software Development	X	X	X	X	X	X	X
J6BB 47	Web Development	X	X	X	X	X	X	X
J7N3 47	Work-based Learning	N/A	N/A	N/A	X	X	X	N/A

Table 2: mapping National Occupational Standards (NOS) to units

NOS sub-disciplines (as coded below) 1 to 5

Key: directly relevant to unit (X), not applicable to this unit (N/A)

Unit code	Unit title	1.1	1.2	2.1	3.1	4.1	4.2	4.3	4.4	5.1	5.2	5.3	5.4
J693 47	Artificial Intelligence	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68W 47	Big Data	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68X 47	Blockchain	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J89A 47	Client Operating Systems	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A
J7S2 47	Computer Programming: Applied Mathematics	X	N/A	X	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A
J68Y 47	Cloud Computing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68L 47	Computer Science	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	X	X	N/A	N/A
J68N 47	Cyber Security	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A
J690 47	Data Flow	N/A	N/A	X	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Unit code	Unit title	1.1	1.2	2.1	3.1	4.1	4.2	4.3	4.4	5.1	5.2	5.3	5.4
J68R 47	Data Science	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A
J8FK 47	Database Design Fundamentals	X	X	X	N/A	N/A	X	N/A	X	N/A	N/A	N/A	N/A
J893 47	Computing Foundations	X	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	X	N/A
J691 47	Emerging Technologies and Experiences	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J692 47	Internet of Things	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68S 47	Network Infrastructure	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	N/A
J6BD 47	Professional Practice in Computing	N/A	X	N/A	X	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A
J68V 47	Software Development	N/A	X	N/A	N/A	N/A	N/A	X	X	X	X	X	X
J6BB 47	Web Development	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X	N/A	X
J7N3 47	Work-based Learning	N/A	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOS sub-disciplines (as coded below) 6 to 9

Key: directly relevant to unit (X), not applicable to this unit (N/A)

Unit code	Unit title	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3
J693 47	Artificial Intelligence	N/A	N/A	N/A	N/A	N/A	N/A	X	X	N/A	N/A	N/A	N/A	N/A	N/A
J68W 47	Big Data	N/A	N/A	N/A	N/A	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68X 47	Blockchain	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J89A 47	Client Operating Systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J7S2 47	Computer Programming: Applied Mathematics	N/A	N/A	N/A	N/A	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J68Y 47	Cloud Computing	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	X	N/A	X	X	X
J68L 47	Computer Science	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A
J68N 47	Cyber Security	X	X	X	X	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
J690 47	Data Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A
J68R 47	Data Science	N/A	N/A	N/A	N/A	X	X	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A

Unit code	Unit title	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3
J8FK 47	Database Design Fundamentals	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
J893 47	Computing Foundations	X	N/A	N/A	N/A	X	N/A	X	N/A	N/A	N/A	X	N/A	N/A	N/A
J691 47	Emerging Technologies and Experiences	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A
J692 47	Internet of Things	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	X	N/A	N/A
J68S 47	Network Infrastructure	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	X	X	X
J6BD 47	Professional Practice in Computing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	N/A	N/A	N/A
J68V 47	Software Development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	X	N/A	N/A	N/A
J6BB 47	Web Development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	N/A	N/A	N/A
J7N3 47	Work-based Learning	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A

NOS for IT professionals is a collection of 437 individual NOS, organised into 11 IT NOS disciplines with 77 sub-disciplines. The framework for HNC Computing provides knowledge and skills relating to 26 of these sub-disciplines as set out in the following table. The IT professionals' NOS are defined at 4 levels (levels 3 to 6) with level 3 being relevant to IT professionals with 0 to 2 years' experience, who can work under supervision. The units listed here each correspond to NOS at level 3. The units listed are all at SCQF level 7.

IT NOS discipline (level 3)	Sub-disciplines	Code
1. Digital Leadership	Personal Competencies	1.1
1. Digital Leadership	Business Competencies	1.2
2. Business Analysis and Change	Modelling Business and Data	2.1
3. Project Management	IT Project Management	3.1
4. Architecture, Analysis and Design	Systems Analysis	4.1
4. Architecture, Analysis and Design	Data Analysis	4.2
4. Architecture, Analysis and Design	HCI Design	4.3
4. Architecture, Analysis and Design	Data Design	4.4
5. Solution Development	Software Development	5.1

IT NOS discipline (level 3)	Sub-disciplines	Code
5. Solution Development	IT Solution Testing	5.2
5. Solution Development	IT Technology Systems Installation	5.3
5. Solution Development	User-centred Development	5.4
6. Cyber Security	Information Security Management	6.1
6. Cyber Security	Risk Assessment and Management	6.2
6. Cyber Security	Security Testing	6.3
6. Cyber Security	Threat Intelligence	6.4
7. Data Science Data Management	Data Analysis	7.1
7. Data Science Data Management	Data Science	7.2
7. Data Science Data Management	Artificial Intelligence	7.3
7. Data Science Data Management	Machine Learning	7.4
8. Digital Content Management	Develop Mobile Apps	8.1
8. Digital Content Management	Web Analytics	8.2

IT NOS discipline (level 3)	Sub-disciplines	Code
8. Digital Content Management	Create and Publish Digital Content	8.3
9. IT Networks	Network Services Planning	9.1
9. IT Networks	Network Design	9.2
9. IT Networks	Network Implementation and Support	9.3

Table 3: assessment strategy for the qualification

Unit code	Unit title	Assessment method
J893 47	Computing Foundations	• Product: digital artefacts, screenshots, charts, graphs, reports, code
J6BD 47	Professional Practice in Computing	• Product: project report
J7S2 47	Computer Programming: Applied Mathematics	• Knowledge: a test of knowledge and understanding (closed book)
J68L 47	Computer Science	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J68R 47	Data Science	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J68V 47	Software Development	• Product: digital artefacts
J6BB 47	Web Development	• Product: digital artefacts
J68N 47	Cyber Security	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J68S 47	Network Infrastructure	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)

Unit code	Unit title	Assessment method
J68W 47	Big Data	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J68X 47	Blockchain	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J68Y 47	Cloud Computing	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J690 47	Data Flow	• Product: digital artefacts
J692 47	Internet of Things	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J89A 47	Client Operating Systems	• Product: digital artefacts, checklists, reports
J8FK 47	Database Design Fundamentals	• Product: digital artefacts: tables, database, SQL code • Knowledge: a test of knowledge and understanding (closed book)
J693 47	Artificial Intelligence	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)
J691 47	Emerging Technologies and Experiences	• Product: digital artefacts • Knowledge: a test of knowledge and understanding (closed book)

Unit code	Unit title	Assessment method
J7N3 47	Work-based Learning	• Product: personal development plan, self-reflection report • Performance: observation of professional behaviours, including digital skills and sustainable working practices • Knowledge: learning log or portfolio of work, including case studies and research outcomes

Meta-skills

Every NextGen: HN Qualification gives learners the opportunity to develop meta-skills.

Meta-skills are transferable behaviours and abilities that help people to adapt and succeed in life, study and work. There are three categories of meta-skills: self-management, social intelligence and innovation. Each of these is made up of four meta-skills and a number of sub-skills.

- Self-management — focusing, integrity, adapting, initiative
- Social intelligence — communicating, feeling, collaborating, leading
- Innovation — curiosity, creativity, sense-making, critical thinking

From early in the qualification, we want learners to identify and understand the meta-skills they can develop, and to appreciate the personal and professional value of these skills. We want to support learners to continue to articulate, use and build on them long after they have achieved their qualification. In this way, we help learners to develop broad skills profiles, enabling them to thrive in a changing world.

Every NextGen: HN unit signposts opportunities for learners to develop meta-skills, and there is an assessed outcome in one of the mandatory units. When you make your whole-qualification grade decisions, you consider learners' commitment to engaging with meta-skills development.

You do not assess learners on their competence or progress in individual meta-skills. Instead, you assess them on evidence that they have engaged with a personal process of development. Meta-skills development is founded on a clear process of self-assessment, goal setting, action planning and reflective practice.

You can find meta-skills teaching, learning and assessment resources on SQA's meta-skills web page.

Meta-skills in HNC Computing

You can introduce meta-skills to learners as tools they can use in response to real-world challenges and opportunities. At SCQF level 7, you should use terminology from the Skills 4.0 model, but it is important that you develop a shared understanding with learners about meta-skills and what they mean to them, both individually and in the context of coursework, projects and sectors.

You should embed meta-skills in learning and project tasks as a context for planning, practice, and reflection. You should encourage learners to be self-aware, set active goals and monitor their progress.

The process of developing meta-skills is not linear and you should make learners active participants in their learning. At the start of the process, you should introduce meta-skills to learners and explore the concept of self-assessment with them. You should set goals and make development and evaluation plans together. The process should become cyclical, with reflective practice informing new self-awareness, goal setting and review.

Many traditional learning and teaching activities used to develop industry or sector-specific skills, knowledge and understanding also support the development of meta-skills. You can map these in course materials and resources and during learning.

Meta-skills are central to successfully engaging with and completing assignments and projects. You should encourage learners to plan how they will use and develop meta-skills in their coursework and to reflect on their success and future goals.

The role of the coach, mentor or facilitator is key to helping learners understand, develop and reflect on their own meta-skills and those central to course activities, assessment projects, and their target industry or sector. You and any employer partners or guest speakers could guide learners by taking on a coaching and mentoring role.

In this role, you should introduce learners to the fundamentals of reflective practice. You could use several models of reflective practice. You do not need to use a

theoretical perspective. Any reference to these models should support learners' understanding of the nature and value of reflective practice in self-understanding and making change.

Learning for Sustainability

Context

The United Nations (UN) 2030 Agenda for Sustainable Development, adopted by the UK in 2015, has shaped the development of Scottish, national and international sustainability policy. It sets out the UN Sustainable Development Goals (SDGs), which are central to the Scottish Government's National Performance Framework. Learning for Sustainability (LfS) is a commitment to embedding the SDGs in Scottish education.

LfS embraces global citizenship, sustainable development, social justice, human rights, climate change, biodiversity loss, equality and inclusion. Learners develop their capacity to deal with the unpredictable social, economic and environmental challenges facing our rapidly changing world.

LfS combines:

- education for sustainable development (ESD)
- global citizenship
- outdoor learning

ESD is the internationally used term for sustainability education. Although LfS has a broader remit, the terms are largely interchangeable. Colleges and universities tend to use ESD, while schools usually use LfS. Both focus on a broad range of social, economic and environmental themes and approaches across all levels of education. SQA uses LfS as an umbrella term.

Learning for Sustainability in Next Generation Higher National Qualifications

Sustainability is a core component in this qualification.

Learners who complete this qualification should have:

- a general understanding of social, economic and environmental sustainability
- a general understanding of the SDGs
- a deeper understanding of subject-specific sustainability
- the confidence to apply the skills, knowledge, understanding and values they develop in the next stage of their life

Sustainability is embedded as an outcome in the Professional Practice in Computing unit.

Learners who complete this outcome can:

- assess their own knowledge and understanding of sustainability and the SDGs
- review unit content against the SDGs to identify a sustainability-related issue
- apply knowledge and understanding of sustainability and the SDGs to propose improvements

The rise of digital technologies has an increasing impact on our lives, such as:

- fast and secure internet
- online access to knowledge and resources
- cloud computing services
- the Internet of Things (IoT)
- artificial intelligence
- blockchain

They enable us to:

- connect and communicate
- monitor and track
- analyse huge quantities of data and make predictions
- augment our human abilities
- manage processes autonomously

HNC Computing makes learners aware of the impact of the digital technologies industry in relation to global sustainability. Learners should understand that processes in the production of digital devices consume rare earth metals, while modern consumer economies result in increasing digital waste. The increasing use of cloud computing services also leads to high energy consumption in the centres that support these services.

Learners should understand the challenges of gender imbalance in many aspects of employment in the industry, particularly in highly technical roles, such as network engineering and cyber security.

In the computing industry these challenges are understood, and significant steps are taken to address them. Further, digital technologies themselves contribute to the improvement of sustainability and progression towards net zero in carbon and waste. Using computation to drive artificial intelligence, and networking to enhance communications, digital technologies provide the tools required to address the challenges of the SDGs.

When you deliver HNC Computing, you should expose learners to the challenges raised by the increasing use of these technologies, and the significant contribution that they make towards progress in achieving the SDGs.

Digital technologies and SDGs

The digital technologies industry contributes especially to SDG 9: helping to build resilient infrastructure — promoting inclusive and sustainable industrialisation, and fostering innovation. Efficient and affordable ICT infrastructure and services help countries to engage in the digital economy and boost their economic competitiveness and wellbeing.

ICTs provide the means to deliver high-quality goods and services in:

- health care
- education
- finance
- commerce
- governance
- agriculture
- other vital areas

They can help to:

- reduce poverty and hunger
- boost health
- create new jobs
- mitigate climate change
- improve energy efficiency
- make cities and communities more sustainable

Here are examples of how digital technologies contribute in a significant manner to the fulfilment of the SDGs:

- SDG 1: no poverty — access to digital financial services has been proven to help lift people out of poverty.
- SDG 2: zero hunger — farmers can increase crop yields and reduce energy use through data-driven and ICT-enabled agricultural practices.
- SDG 3: good health and well-being — digital health applications, such as telemedicine and remote medical imaging, support direct patient interactions to populations that are remote from cities.
- SDG 4: quality education — digital learning and teaching are enabling young people to access education and training that gives them skills to participate in a 21st century workforce.
- SDG 5: gender equality — while wide gender gaps in the use of digital technologies still exist in many world regions, they have been narrowed in the developing world through investment in initiatives that promote careers in ICT to women.
- SDG 7: affordable and clean energy — the increasing use of digital technologies contributes to emissions of the various greenhouse gases. While cloud computing centres are significantly large consumers of energy, their operators are actively incorporating solar, wind and other renewable sources. Also, the replacement of on-premises computing capacity with virtualised cloud services has significantly reduced the energy used for computing applications and networks. The digital technology industry has established stringent standards for energy efficiency in devices.
- SDG 10: reduced inequalities — by providing access to technologies and knowledge to disadvantaged communities and countries, digital technologies provide opportunities to reduce inequalities.
- SDG 12: responsible consumption and production — the continued growth of digital technology, and its devices and infrastructure, gives rise to increased e-waste from electronic and electrical equipment. The digital technologies sector recognises this unwelcome consequence of its activities and has invested in initiatives such as the Global e-Sustainability Initiative (GeSI), which provides frameworks to monitor and control its contribution to e-waste.

- SDG 14: life below water and SDG 15: life on land — the use of remote sensor networks (Internet of Things) and imaging technologies has enabled the monitoring of endangered species and tracking of wildlife populations.
- SDG 16: peace, justice and strong institutions — the introduction of digital access to government information and services helps to improve the relationship between citizens and the state and the efficiency of government services.

You can cover any of the SDGs that are relevant to the subject area.

Find out more about SQA's approach on the NextGen: HN Learning for Sustainability web page. There is an LfS reflective template available in the resources section. You may find it helpful as a starting point for considering how the SDGs are, or could be, embedded in a qualification, unit or assessment.

Grading

Please see the Grading Pack for this qualification for more information on making grade judgements.

Grading in NextGen: HN Qualifications produces a valid and reliable record of a learner's level of achievement across the breadth of the qualification content.

As well as grading the whole qualification, you assess individual units on a pass or fail basis. Each unit has evidence requirements that learners must achieve before you can consider them for whole-qualification grading.

Whole-qualification grade outcomes

Learners who pass NextGen: HN Qualifications receive one of the following grade outcomes for the qualification as a whole:

- Achieved with Distinction
- Achieved with Merit
- Achieved

To determine a learner's whole-qualification grade, you use the grading matrix provided in the Grading Pack to assess and judge their performance across the key aspects of the HNC. You must align your judgements with the following whole-qualification grade descriptors.

Whole-qualification grade descriptors

Achieved with Distinction

The learner has achieved an excellent standard across the course content, going significantly beyond meeting the qualification requirements. They showed a comprehensive knowledge and understanding of course concepts and principles, and consistently used them to apply skills to complete high-quality work. They engaged significantly with the process of developing their meta-skills in the context of their HN Qualification.

Achieved with Merit

The learner has achieved a very good standard across the course content, going beyond meeting the qualification requirements. They showed a very good knowledge and understanding of course concepts and principles, and consistently used them to apply skills to complete work of a standard above that expected for an Achieved grade. They actively engaged with the process of developing their meta-skills in the context of their HN Qualification.

Achieved

The learner has achieved a good standard across the course content, credibly meeting the qualification requirements. They showed a good knowledge and understanding of course concepts and principles, and used them to apply skills to complete work of the required standard. They engaged with the process of developing their meta-skills in the context of their HN Qualification.

Approaches to delivery and assessment

HNC Computing aims to develop knowledge and understanding of computing concepts and principles and provide opportunities for reflective practice. A significant proportion of the learning experience is in practical computing contexts, dealing with both hardware and software components of computing systems.

We recommend that you deliver HNC Computing through active learning. You should present theoretical concepts in a framework of lectures, practical demonstrations and workshops, and apply theory to practice using activity-based assignments.

You can deliver HNC Computing through blended learning, combining on-campus sessions with online work, as appropriate. The learning and teaching methods you will typically use include lectures, seminars, workshops, tutorials, e-learning, online sessions and support. We expect learners to carry out a significant amount of personal study, including background reading, assignment work, preparation for seminars, and revision.

You should aim to develop computational thinking in most computing activities. The main areas of computational thinking that you can develop in the qualification are:

1. logical reasoning
2. decomposition
3. designing algorithms
4. identifying patterns and generalisation
5. abstraction
6. evaluation
7. organising data

You can support learners by using key concepts, terms, and vocabulary and providing opportunities for them to build a shared and consistent understanding. You can develop their collaboration competencies through group project work, peer instruction and structured group tasks, to stimulate dialogue and development of shared understanding.

You can make use of physical computing and making activities to provide tactile and sensory experiences that can enhance learning. In such activities, you model computing processes and practices, using techniques such as worked examples and live coding. You should also aim to model the behaviours suited to the development of a professional ethos in the practice of computing. You can enhance this aspect using guest speakers from the industry and arranging off-campus visits. This also provides an opportunity to introduce ideas about sustainability and how computing technologies and solutions contribute to the UN SDGs.

You should emphasise the importance of design as an aspect of computing. For example, you might ask learners to develop an artefact for a particular user or function and evaluate it against a set of criteria. You can bring abstract concepts in computing to life with real-world, contextual examples, achieved using unplugged activities, analogies and finding examples of the concepts in learners' lived experiences.

The qualification develops knowledge and understanding of computing concepts. You can achieve this through a blend of printed and online materials to supplement face-to-face teaching. The online learning resources may include websites, audio and video media clips, and interactive activities such as online quizzes. You can foster learning opportunities through group work and carrying out practical work. You should also encourage learners to find and evaluate external or third-party material online to enhance their learning. You help learners select and use specialist software to produce evidence for assessment.

To accommodate different aptitudes in your learners, you should adopt a range of teaching and learning approaches, including:

- self-assessment questions and exercises
- programming tasks
- computer-based investigations
- open-ended project work
- feedback and guidance from lecturers
- tutorials
- study guides
- online moderated forums

Given that most units in the HNC require the creation of one or more products (digital and non-digital), you should make sure you have allocated sufficient time for learners to perform the work, evaluate it and adjust it before submission. Where particular resources are required (such as specialist software), you must ensure equity of access to such resources so that no learner is disadvantaged and your assessment practice is not open to challenge.

You should carefully select assessment approaches that are valid and reliable. We have provided further guidance on holistic assessment in a later section. Where possible, you should seek opportunities to reduce the overall assessment burden on learners. It's important to address accessibility when you provide assessment directions or resources online.

Sequencing or integrating units

The delivery pattern for HNC Computing varies from centre to centre, depending on how you structure the academic year. Rather than specifying a week-by-week delivery schedule (as some do), this guide suggests only the sequence in which you might deliver units, and the optional units that you might select (8 SQA credits in total) for various potential progression routes into an HND Computing qualification specialism.

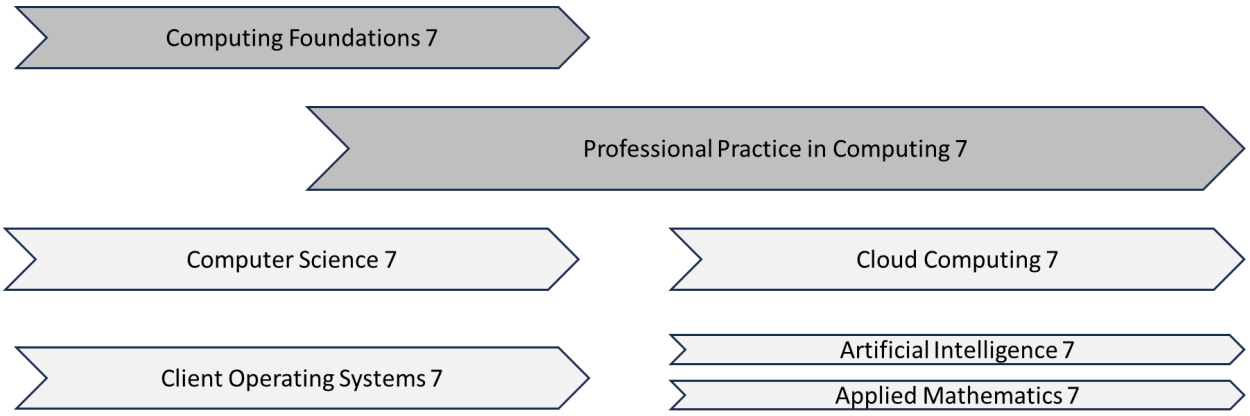
We expect that your delivery will have its initial focus on the sector-specific unit Computing Foundations, exposing learners to the main concepts they expand on in the HNC, particularly in the project-based unit Professional Practice in Computing. We advise that you schedule the start of the work for the Professional Practice unit project to ensure you have introduced sufficient of the core computing concepts, techniques and tools.

HNC Computing builds a strong foundation for learners to progress to one of the computing specialisms at HND level. At the time of writing, these include:

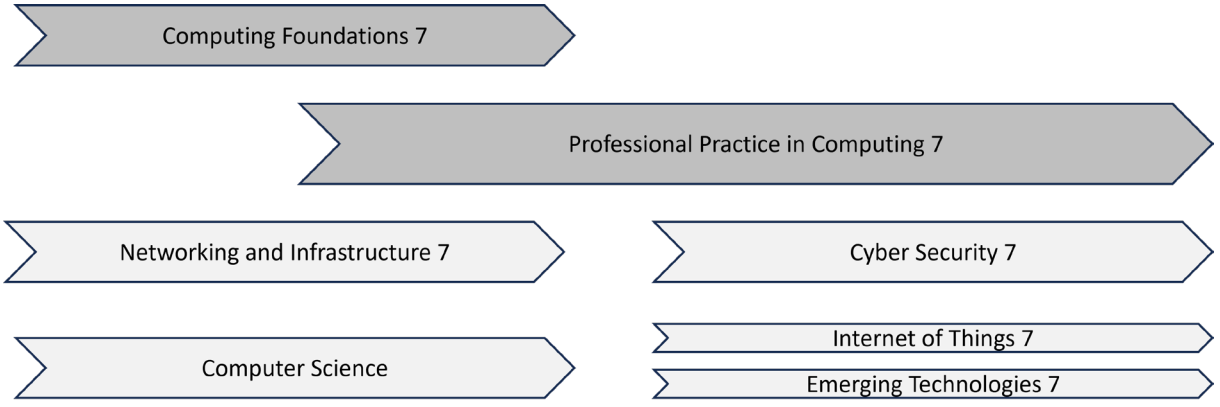
- HND Computer Science
- HND Data Science
- HND Software Development
- HND Cyber Security
- HND Networking and Cloud Infrastructure

The following schema represents the suggested sequences for progression to each of these specialisms.

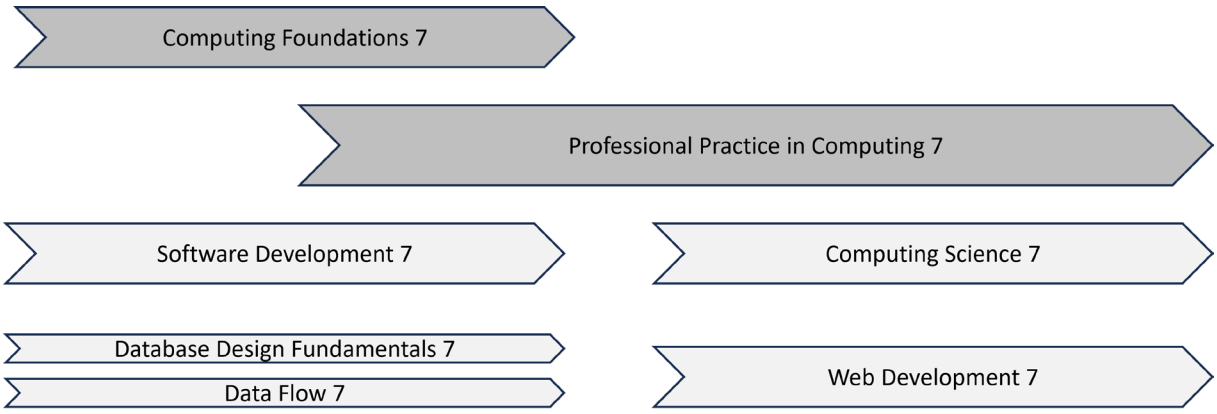
Progression to HND Computer Science



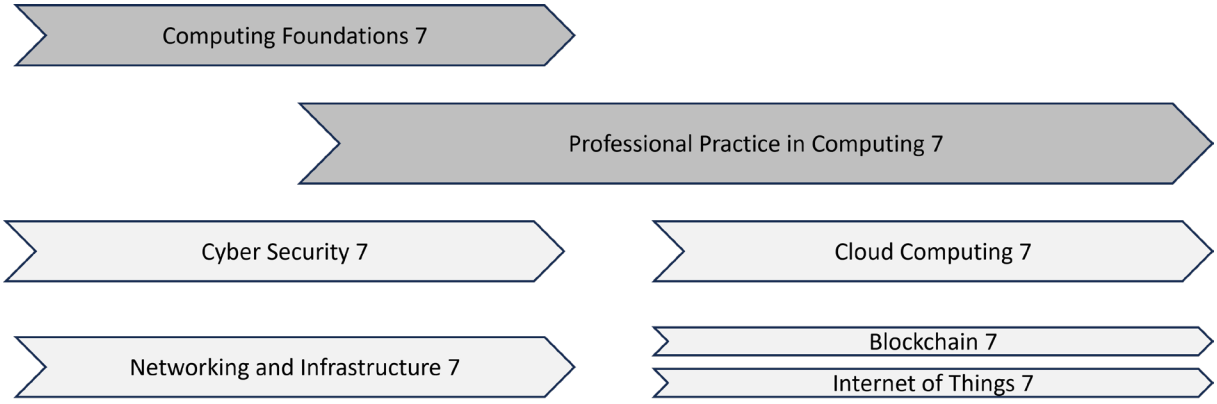
Progression to HND Networking and Infrastructure



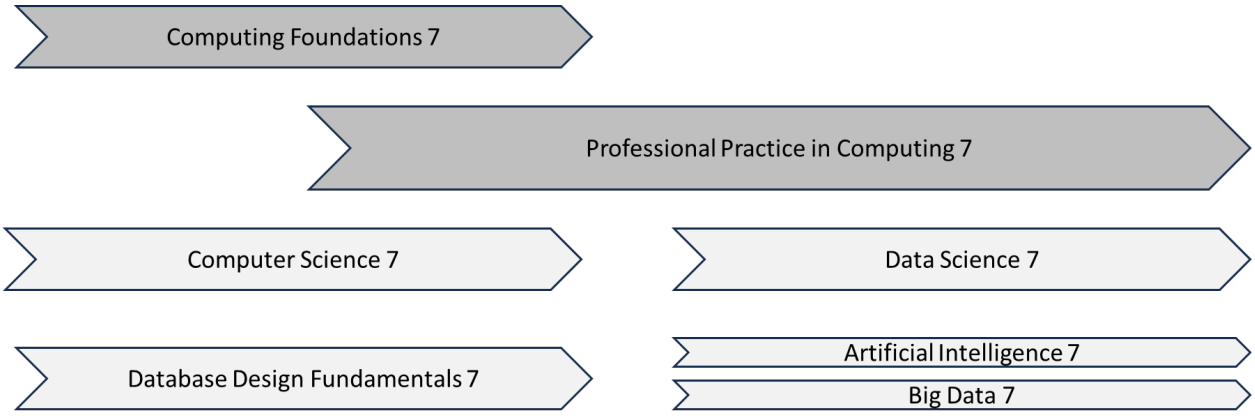
Progression to HND Software Development



Progression to HND Cyber Security



Progression to HND Data Science



Additional guidance on integrated or holistic assessment

Holistic or integrated assessment focuses on assessing a number of outcomes in a unit together, or in some cases, assessing the unit as a whole, rather than by outcome. When assessing a unit of competence holistically, the assessment activities integrate a number of aspects of the competence. Holistic or integrated assessment can reduce the time spent on assessment and can promote greater equity in the assessment process.

When developing or revising a NextGen: HN Qualification, SQA works with a development team to devise an appropriate assessment strategy that accommodates holistic or integrated assessment. However, the practice of integrating units for the purposes of learning and teaching is a centre-led activity.

Units are designed to facilitate holistic or integrated assessment approaches that prevent large, unwieldy assessments.

Sometimes more than one piece of evidence is needed for a unit. For example, if a unit is about creating code, a learner would need to produce evidence of knowledge (following the software development processes) and product (a working piece of code).

Evidence requirements must do what they say: specify requirements for evidence of learner competence in the unit. The evidence must be of sufficient quality for an assessor or verifier to judge that the learner has achieved the unit.

Assessing project units

Professional Practice in Computing at SCQF level 7 comprises a software project that is sufficiently large or complex to require analysis and solution by a project team. You organise your cohort into teams of three to five learners, taking into account the preferences expressed by learners in relation to the available projects. Use your judgement about appropriate composition for each team, which should vary in terms of age, gender, ability and other relevant characteristics.

You should have a range of software development projects that are suitable for learners to demonstrate the outcomes of the unit. You should select these to be as authentic (real-world) as possible and aligned to the level of study required. The project should allow learners to draw on the range of outcomes in their Higher National qualification and make it possible for them to develop their meta-skills while engaging in the project. To standardise the learner experience and level of demand, you should use a template to describe the objectives and required outcomes for each project offered to the groups of learners.

Your role in the conduct of the projects is to:

- approve projects
- assign learners to teams
- ensure each team allocates roles at the commencement of the project
- receive briefings from each team on progress against milestones
- observe and record the contributions of individual learners to teamwork and solution
- arrange for the presentation of the project outcomes and solution
- intervene to guide and support learners when circumstances require it

You should approach your role with a light touch, leaving each team to make their own decisions about a project methodology, as well as roles, timelines, resource allocations and meetings. We recommend that each learner leads a specific part of the project (for example as lead analyst or lead software designer).

The product evidence is a digital solution to a problem that requires project management and development approaches. Each project team must collectively produce items 1 to 5 below. Each learner must individually produce item 6. Learners must provide the following product evidence:

1. a project plan based on requirements-gathering and analysis
2. the digital solution to the problem
3. a project report (including project evaluation)
4. documentation of the product (technical and user)
5. a presentation of the project outcomes and demonstration of solution
6. a personal statement

The digital product must be a working solution that meets the requirements set out in the project plan. Each learner's personal statement must:

- describe their specific role or roles in the project team
- include self-evaluation of their contribution to the development of the digital product

The performance evidence is in two parts:

- a record of the learner's professional behaviours and contributions to the project; this may be in the form of a checklist
- a recording of the project team's performance in delivering the presentation

Each learner must make an identifiable contribution to the final presentation of the project outcomes and the demonstration of the solution. Their contribution can be in any form that is appropriate and agreed with you.

Remediation and re-assessment in Next Generation Higher National Qualifications

Remediation

Remediation allows an assessor to clarify learners' responses, either by requiring a written amendment or by oral questioning, where there is a minor shortfall or omission in evidence requirements. In either case, the assessor must formally note such instances, in writing or as a recording, and make them available to the internal and external verifier.

Remediation is not permitted for closed-book assessments.

The size and structure of the larger NextGen: HN units should mean that the assessor or lecturer is close enough to ongoing assessment activity in project-based units to identify the requirement for remediation as it occurs.

Re-assessment

We must give learners who fail the unit a re-assessment opportunity or, in exceptional circumstances, two re-assessment opportunities. Where we have introduced larger units to the framework, we expect instances of re-assessment to be minimal, due to the approach to assessment and remediation. Where re-assessment is required in a project-based unit, a substantially different project must be used.

Resource requirements

To deliver HNC Computing, you need access to computing and IT resources, such as PCs and networks for communicating to the internet and providing learning materials and storage. Some units, such as Software Development, require other specialist software. You should carefully consider the resource implications of each unit that is selected to be part of the course, to ensure that it is accessible on your computing and IT systems, and that learners can also have access when they are outwith your centre. The resource requirements for each unit are set out in the unit specification.

Information for centres

Equality and inclusion

The units in this HNC are designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

You should consider the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence.

Guidance on assessment arrangements for disabled learners and those with additional support needs is available on the assessment arrangements web page.

Internal and external verification

You must make sure all instruments of assessment you use in this qualification are internally verified according to your centre's policies and SQA's guidelines.

SQA carries out external verification to ensure that internal assessment meets the national guidelines for this qualification.

More information on internal and external verification is available in SQA's Guide to Assessment and in Next Generation: Higher National Quality Assurance — Guidance for Centres.

Glossary

SQA credits: 1 SQA credit equals 8 SCQF credit points.

SQA credit value indicates the contribution the unit makes to an SQA qualification. An SQA credit value of 1 represents approximately 40 hours of learning, teaching and assessment.

SCQF: the Scottish Credit and Qualifications Framework (SCQF) is Scotland's national framework for describing qualifications. We use SCQF terminology in this guide to refer to credits and levels. For more information on the SCQF, visit the SCQF website.

SCQF credit points indicate the amount of learning required to complete a qualification. NextGen HNCs and HNDs are worth 120 SCQF credit points.

SCQF levels indicate how hard the qualification is to achieve. The SCQF covers 12 levels of learning. NextGen HNCs are at SCQF level 7 and NextGen HNDs are at SCQF level 8.

Information for learners

HNC Computing

This information explains:

- what the qualification is about
- what you should know or be able to do before you start
- what you need to do during the qualification
- opportunities for further learning and employment

Qualification information

HNC Computing provides core knowledge, understanding and skills to support you to further your studies in computing. It enables you to go on to achieve a career in areas such as software development, cyber security, and networking and infrastructure. It gives you the foundational knowledge and cognitive skills you need to study computing science and other computing and IT specialisms at a more advanced level.

You gain an understanding of the various issues and contexts that affect a computing professional in today's business environment. You develop your computing knowledge alongside a wider range of workplace skills that employers are looking for, such as effective communication and problem solving. You have practical experience in using computing technologies and you gain skills in the main tasks used to build and maintain software, such as analysis, design, programming, and evaluation.

Before you start, you should have a basic understanding of the role of computer systems in today's world, and the range of their applications to solve business and engineering problems. You must have a good level of numeracy, along with communication skills. You can evidence these with qualifications that you have previously gained. Entry to the qualification is at your centre's discretion.

This qualification is taught by knowledgeable and experienced lecturers, and you are supported in your learning with printed and online material. Online learning resources may include websites, audio and video media clips, and interactive activities, such as online quizzes. You carry out practical work in computing that requires you to have access to computing resources when at home. You engage with other learners in group work and project work, and develop meta-skills in self-management, teamwork, communication, creativity and innovation. You gain meta-skills as you work to develop your knowledge and understanding of the technologies and practices of computing. If you have any disabilities, your centre will put in place any adjustments or additional support that you require.

You have the opportunity in this qualification to gain digital skills that are of value to employers, as well as sufficient knowledge and understanding of computing techniques and tools to enable you to enter employment in a junior role. You gain understanding of computing concepts and develop learning and studying skills that provide you with a foundation for further study in computing specialisms, such as networking and infrastructure, cyber security, software development and computer science.

HNC Computing comprises 240 hours of learning (15 SQA credits), of which 120 hours are self-directed learning. It consists of two mandatory units totalling 7 SQA credits, with the remaining 8 SQA credits being selected from a set of optional units as set out in the HNC Computing framework. The optional units available for study is at your centre’s discretion and may reflect available progression and articulation routes to further qualifications.

The Computing Foundations unit (3 SQA credits) is where you learn the concepts that underpin the practice of computing in a range of contexts, including software development and programming, elements of data science and cyber security. During the unit, you learn to use a wide range of digital devices, such as personal computers and tablets. You use application packages, such as word processing, spreadsheet and presentation software. The unit also covers cyber security and data analysis. For example, you might be shown how to use a spreadsheet to analyse a small dataset, and then present your findings in graphs and charts. You learn the fundamentals of programming in a modern high-level language, such as Python.

The meta-skills you develop cover self-management, social intelligence and innovation. For example, you improve your self-management skills by making decisions based on data and you also cover ethics. You develop your numerical, communication and digital skills throughout the unit, particularly your digital literacy.

Assessment may take several forms. For example, you might be asked to maintain a portfolio of your work, where you would keep your documents, spreadsheets, presentations and programs. Alternatively, you might be asked to carry out practical assignments.

In the Professional Practice in Computing unit, you carry out a group project in which you investigate and solve a computing problem, communicate your findings and demonstrate your ability to manage a project, work as part of a team and produce a report. In the project investigation, you use some subject-specific knowledge as well as a mixture of programming skills, project management skills and report writing and presentation.

You use problem-solving skills, teamwork and collaboration to complete the project from a given real-world scenario. You document the project in a project diary and timeline and expand your project management knowledge and skills.

Other learning experiences and the further development of meta-skills will vary according to the optional units you select to complete the required number of credits for the qualification.

You gain an appreciation of the ways in which computing technologies and solutions have an impact on sustainability, with reference to the UN Sustainable Development Goals (SDGs).

Administrative information

Published: September 2025 (version 1.0)

History of changes

Version	Description of change	Date

Please check SQA's website to ensure you are using the most up-to-date version of this unit.

If a unit is revised:

- no new centres can be approved to offer the previous version of the unit
- centres should only enter learners for the previous version of the unit if they can complete it before its finish date

For more information on NextGen: HN Qualifications please visit the NextGen: HN web page.