SQA Advanced Unit specification: general information

Unit title: Professionalism and Ethics in Computing

Unit code: HP29 47

Superclass:	DE
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Unit purpose

This unit is designed to provide candidates with a knowledge and understanding of professional issues, including contemporary legislation and ethical considerations, for those fulfilling a computing-related role within the workplace. This unit is intended for candidates whose aim is to follow a career, or are currently following a career, as a computing professional to ensure work duties are carried out responsibly.

On completion of the unit the candidate should be able to:
1   describe professional bodies relevant to computing practitioners.
2   apply codes of conduct and ethical standards relevant to computing practitioners.
3   describe contemporary legislation as it relates to computing practitioners.
4   evaluate ethical considerations in a relevant vocational context.

Recommended prior knowledge and skills

While entry is at the discretion of the centre, learners would normally be expected to have attained one of the following, or equivalent: *Communication* Core Skill at SCQF Level 5, together with an understanding of the application of information technology in organisations, either through prior study (eg achieving the SQA Advanced Unit in Information Technology: Information Systems and Services) or work experience.

Credit points and level

1 SQA credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from National 1 to Doctorates.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this unit specification.

There is no automatic certification of Core Skills or Core Skill components in this unit.

Context for delivery

As this unit is delivered as part of a range of group awards, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

This unit is mandatory for the following group awards: SQA Advanced Certificate in Computing, SQA Advanced Diploma in Computing, SQA Advanced Diploma in Computing: Technical Support, SQA Advanced Diploma in Computing: Networking, and SQA Advanced Diploma in Computing: Software Development.

Unit specification: statement of standards

Unit title: Professionalism and Ethics in Computing

Please refer to *Knowledge and/or Skills for the unit* and *Evidence Requirements for the unit* after the outcomes.

Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1
Describe professional bodies relevant to computing practitioners.

Knowledge and/or Skills
♦   Role and functions of professional bodies.
♦   Professional bodies for computing practitioners.
♦   Impact of computing professional bodies on vocational areas of work.

Outcome 2
Apply codes of conduct and ethical standards relevant to computing practitioners.

Knowledge and/or Skills
♦   Codes of conduct relevant to computing practitioners.
♦   Role of continuous professional development for computing practitioners.
♦   Professional integrity and ethics.
♦   Duty of computing practitioners in social, political and environmental areas.

Outcome 3
Describe contemporary legislation as it relates to computing practitioners.

Knowledge and/or Skills
♦   Computing legislation in the context of job roles for computing practitioners.
♦   Other relevant legislation that impacts on computing practitioners.

Outcome 4
Evaluate ethical considerations in a relevant vocational context.

Knowledge and/or Skills
♦   Sources of ethical advice out with professional bodies for computing practitioners.
♦   Social, political and environmental computing principles.
♦   Ethical conflict resolution.

Evidence requirements for the unit

Candidates will provide evidence to demonstrate their Knowledge and/or Skills by showing that they can produce evidence, which may be in any appropriate form, eg a written report, a presentation, an audio or video recording, a blog or wiki, etc that covers a sample of knowledge and skills from all outcomes for the unit.

Work produced will be based on a case study/scenario of a realistic computing environment.

The case study/scenario should be issued early in the teaching learning activities with a set of associated unseen questions.

Candidate evidence for assessment can be built up on an outcome-by-outcome basis, or candidate evidence can be end-loaded and can cover the evidence requirements for all outcomes.

A different case study/scenario and associated set of unseen questions should be given for each assessment occasion.

Unit specification: support notes

Unit title: Professionalism and Ethics in Computing

This part of the unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this unit

Evidence requirements for all unit outcomes are assessed holistically on a sample basis, however, all the content listed in the Knowledge and/or Skills section must be taught and available for assessment. All the content listed in the Knowledge and/or Skills section should be available for assessment within the SQA Advanced Certificate in Computing: Graded Unit 1 (Exam).

Discussion of real organisational/workplace environments and staff roles should be encouraged in relation to all outcomes for the unit. Candidates should be provided with every opportunity to work with others throughout the course of this unit.

Outcomes for this unit are aligned to selected parts of the National Occupational Standards for IT and Telecoms Standards (2009):

Outcome 1

Is aligned to selected parts with reference to professionalism and professional roles: Pre-entry/Junior Technical, A — Associate Professional, P — Professional, S — Senior Professional, L — Lead Professional) within disciplines 4,5,6,7, ie Solutions Architecture, Solutions Development and Implementation, Information Management and Security and IT Service Management and Delivery.

This outcome covers the necessary underpinning knowledge for candidates to be able to relate to the concept of the benefits of belonging to a body which will set down standards of acceptable practice, offer the opportunity for CPD to enhance member qualification level, employability and up-to-date knowledge of advancements in their specialist area of interest.

In addition candidates should investigate the range of professional bodies related to computing job roles, seeking an understanding of the benefits of membership associated with each. There should be emphasis on the importance of understanding the impact that professional bodies can have on business, society and the duties of computing practitioners within the workplace.

Outcome 2

Outcome 2 enables candidates to have an understanding and knowledge of professional codes of conduct, the meaning of professional integrity in relation to ethical values, as well as an awareness of the integral social duty in political, social and environmental arenas associated with computing practitioners' job roles. Candidates should develop an understanding of the need for and importance of professional standards. Candidates should develop an awareness through their research and discussions of the benefits of CPD and the range of options available to them to enhance their knowledge domain and to increase potential for career progression opportunities. The knowledge gained by candidates, ideally through research, should enable the application of the principles within codes of conduct.

The outcome is aligned to selected parts of the National Occupational Standards: IT and Telecoms (2009) and relates to all levels of computing practitioners; to enable reflection on their actions and performance against standards. At the time of writing the relevant parts of the National Occupational Standards can be found under the headings:

Knowledge
♦	All areas within Solution Architecture
♦	All areas of Solution Development and Implementation
♦	Information Management, IT/Technology Security Management within Information Management and Security
♦	All areas within IT Service Management and Delivery

Understanding
♦	With the exception of IT/Technology infrastructure design and planning all areas relevant to Solution Architecture
♦	Systems Integration and IT/technology systems installation, implementation and handover

Competence
♦	Information Management and IT/Technology Security Management within Information Management and Security

Outcome 3

To enable candidates to have knowledge of a range of contemporary legislation and the application of legislative requirements within the context of a range of computing practitioner job roles, there is a need to be conversant with the extensive range of legislation not only directly designed to address potential areas of unacceptable practices within computing, but with a further extended range of legislation associated with care of the environment, protection of the individual and workplace practices.

This outcome is aligned to selected parts of the National Occupational Standards: IT and Telecoms (2009) regarding adherence to contemporary legislation in the performance of job activities within the computing profession. At the time of writing the relevant parts of the National Occupational Standards can be found under the headings:

Knowledge
♦	All areas within Solution Architecture
♦	All areas within Solution Development and Implementation
♦	All areas within Information Management and Security
♦	All areas within IT Service Management and Delivery

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Understanding
♦ All areas within Solution Architecture
♦ All areas within Solution Development and Implementation
♦ All areas within Information Management and Security
♦ All areas within IT Service Management and Delivery

Competence
♦ Systems Architecture, Data Analysis, Systems Analysis, IT/Technology infrastructure design and planning within Solution Architecture
♦ All areas within Solution Development and Implementation
♦ All areas within Information Management and Security
♦ IT/Technology Service Operations and Event Management, IT/Technology Service Help Desk and Incident Management, IT Application Management/Support, IT/Technology Management and Support, Availability Management, within Service Management and Delivery, Change and Release Management, IT/Technology Service Catalogue and/or Service Level Management, Measurement and Reporting, IT /Technology Asset and Configuration Management and Supplier Management within IT Service Management and Delivery.

The extensive occurrence of legislation and legal requirements indicated within these National Occupation Standards emphasises the importance of the need for all computing practitioners, in all roles, to be conversant with the content and application of contemporary legislation in the context of their own professional activities.

Contemporary legislation refers to all relevant legislation valid at time of unit delivery and should be presented in the context of roles within the computing profession. A suggested indication of delivery content in relation to the professional areas of expertise is contained in the section *Guidance on delivery of the unit*.

The use of sampling in the assessment allows assessors to identify those areas of legislation associated with specific job roles, levels and skills within the National Occupational Standards to ensure relevance to candidate group award.

Outcome 4

Ensures that candidates have a knowledge and understanding of ethical standards against which professionals are required to measure their actions and performance; not only those covered directly by professional bodies, but also the range of ethical values and sources of ethical standards across business, society and cultures. Candidates should be encouraged to develop a methodology for dealing with ethical conflict and a range of standards which can be applied to measure ethical practice.

The outcome is aligned to selected parts of the National Occupational Standards: IT and Telecoms (2009). At the time of writing the relevant parts of the National Occupational Standards can be found under the headings:

Knowledge
♦ All areas within Solution Architecture
♦ All areas within Solution Development and Implementation
♦ Information Management and IT/Technology Security Management within Information Management and Security.

Understanding
♦ With the exception of IT/Technology infrastructure design and planning, all areas within Solution Architecture.
♦ Systems Integration and IT/Technology systems installation, implementation and handover. Within Solution Development and Implementation.

Competence
♦ Information Management and IT/Technology Security Management within Information Management and Security.
♦ IT/Technology Service Catalogue and/or Service Level Management, Measurement and Reporting within IT Service Management and Delivery.

Guidance on the delivery of this unit

This unit is mandatory in the following group awards: SQA Advanced Certificate in Computing, SQA Advanced Diploma in Computing, SQA Advanced Diploma in Computing: Technical Support, SQA Advanced Diploma in Computing: Networking and SQA Advanced Diploma in Computing: Software Development, and is designed to prepare candidates for employment in an IT/computing job role. Where the unit is being delivered to group award candidates it is expected that it will be scheduled within the first year of full-time study. This unit is research based and candidates should be encouraged to contribute to their own learning through the creation of knowledge collections relevant to the Knowledge and/or Skills sections for all outcomes.

Delivery of the unit could be designed to allow candidates to relate Knowledge and/or Skills for each outcome to a range of occupational areas in computing/IT. Outcome 1 could be set as a research activity for candidates and could be recorded either in an e-portfolio or folio by candidates using electronic, written or oral form and consideration could also be given to use/inclusion of candidate podcasts and/or use of video to record information/detail gathered. Within the outcome it would be beneficial if an opportunity was given for candidates to consider computing professional bodies compared to professional bodies for other groups such as doctors and lawyers (whose professional bodies control the right to practice the profession by 'licensing' practitioners). Outcome 4 could be delivered in parallel with Outcomes 2 and 3 to ensure candidate integration of Knowledge and/or Skills section from outcomes in the unit and enhancement of understanding of concepts in both codes of conduct and contemporary legislation relating to ethical practices and the need for standards within professional activities.

Outcome 3 will most likely be delivered by presentation of relevant contemporary legislation however this should be set firmly in the context of the range of vocational areas in the Knowledge and/or Skills section of the outcome. The relationship between legislative areas and the Knowledge and/or Skills is shown in the table below:

	Data Protection	Computer Misuse	Intellectual Property Rights	Consumer Protection	Health and Safety at Work	Freedom of Information	Regulation of Investigatory Powers	Disability Discrimination	Telecommunications security/interception	Protection of the individual	Protection of the environment
♦ Information management	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
♦ Human Needs Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
♦ Service Management	✓	✓	✓		✓			✓	✓		✓
♦ Technical Support Activities	✓	✓	✓	✓	✓				✓		✓
♦ Software development activities	✓	✓	✓	✓				✓	✓	✓	
♦ Systems Development	✓	✓	✓		✓			✓	✓	✓	✓

Where possible during the delivery, links could be drawn with other relevant areas of the course, eg information systems and project management. Candidate-centred, resource-based practices could be integrated within course delivery to promote candidate's independent study. To encourage candidate's understanding of the role of computing professionals and the relevance of unit content to a range of computing roles, guest speakers and/or visits to local business organisations could be integrated into the course schedule.

In addition, formative activities involving peer group assessment would benefit candidate breadth of application of Knowledge and/or Skills for the unit. It is recommended that use of a wiki or similar might be encouraged to allow candidate sharing of knowledge, research findings and examples for the range of Knowledge and/or Skills for the unit. Candidate contributions to a wiki or similar could be drawn from personal e-portfolio, portfolio, and be in any digital format including (but not restricted to) podcast or video. Examples of areas which could be included might be 'case' illustrations for areas of legislation facilitating discussions on the relationship between professional standards, legislation and ethical conduct.

It is also recommended that candidates make use of the Athens service to allow research activities related to the Knowledge and/or Skills ranges for all outcomes while also recording (eg using the Harvard system) details of sources of knowledge/information used during both formative and summative assessment.

In addition the use of scaffolding materials for the content of the unit could be made available through a mechanism such as an institutional VLE to support the learning process and to increase flexibility to take account of candidates preferred learning style(s).

Scaffolding materials could include use of podcasts, vidcasts, research articles available through creative commons and web based resources such as government legislation information videos and FAQs.

In delivering the unit consideration could be given to the use of technology enhanced learning methods to improve candidate engagement with unit content.

An extensive range of reference material is available on the web and in print for all the topics within this unit.

Guidance on the assessment of this unit

Outcomes 1–4 are assessed by a single assignment which may be produced in any appropriate form as outlined in the evidence requirements for the unit, a different sample should be chosen for each assessment occasion. Work produced will be under supervised open-book conditions.

E-assessment could be used as an alternative to allow candidates to provide a digital record of evidence to demonstrate Knowledge and/or Skills. Suggested approaches to production of digital evidence to demonstrate Knowledge and/or Skills outlined in the support notes, *Opportunities for the use of e-assessment*

A detailed case study should be given to candidates close to the start of the unit to allow students to relate Knowledge and/or Skills within the teaching/learning to a workplace context.

Questions may be asked of the unit assessor by candidates for the purpose of clarification of the case study/scenario details. It is recommended that assessor responses and candidate questions be recorded as a shared resource for the unit.

The assessment is open-book and therefore candidates should be encouraged to gather and refine information/knowledge related to the range stated for each outcome. The final assignment work produced by candidates should be evaluated on the basis of the evidence requirements stated for the unit. Appropriate measures should be taken to ensure the integrity of individual student assignment submission.

In assessing candidate submissions the undernoted identifies the minimum criterion for awarding a pass for the unit:

♦ Describe:
  — a minimum of two professional bodies for the computing profession.
  — a minimum of three functions carried out by those professional bodies.
  — two areas of impact/influence of professional bodies on vocational areas of work.
♦ Apply two working principles related to computing professionals from a professional code of conduct.
♦ Exemplify one professional development activity, professional integrity and social duty for a specified computing professional role.
♦ Describe three areas of legislative concern for a specified computing professional role from the range of knowledge and skills for Outcome 3.
♦ Evaluate two ethical issues from the range given, one social/environmental principle and suggest an appropriate resolution to a specified area of ethical conflict.
♦ Use a referencing standard to record areas of research.

Online and distance learning
This unit could be delivered by distance or online learning. It should be noted that this type of delivery may require addition scheduling and planning by the centre to arrange supervision of assessment completion and authenticity of evidence produced by candidates.

Opportunities for the use of e-assessment
E-assessment may be appropriate for the assessment for this unit. For example completion of the assignment used for assessment of the unit may take place by online communication recorded by use of video/audio recording software to capture candidate attempt, similarly online conferencing software could be used by assessment supervisor and individual candidates for an assessment occurrence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003).*

Opportunities for developing Core Skills
In this unit candidates will naturally use and develop aspects of the Core Skill of *Communication* at SCQF level 6 as they work through the assessment requirements. Additional opportunities could be realised through the chosen methods of delivery of the unit and integrated candidate activities.

In this unit candidates will:

♦   by research — record (either in written, oral or digital form) details about:
   — computing professional bodies, their purpose, aims and services offered to the professional computing community, business and society.
   — the guidance role that professional bodies play in the day to day conduct required of computing practitioners by creation of standards for performance.
   — current legislation related to computing practitioner job roles.

♦   by contribution to a wiki or similar:
   — have the opportunity to discuss content of the one or more of the unit outcomes.

♦   develop the skills/knowledge:
   — to evaluate a range of ethical considerations related to computing professionals day to day working practices by examining a variety of real life business challenges in computing.

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.

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

History of changes

Version	Description of change	Date

FURTHER INFORMATION: Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our Centre Feedback Form.

General information for candidates

Unit title: Professionalism and Ethics in Computing

This unit is designed to allow you to gain the knowledge and understanding required to carry out the day to day duties and activities required of a computing professional in an ethical manner with due attention to business, society and legal requirements.

The unit consists of four outcomes which inter-relate to one another, to assist you in development of a knowledge base and understanding of a computing professional's responsibilities in regard to:
♦ professionalism in duties carried out within job functions including: the advantages of interacting with professional bodies in computing, the need for Continuous Professional Development, and awareness of appropriate/acceptable conduct.
♦ contemporary legislative requirements.
♦ adherence to appropriate ethical conduct.
♦ understanding of potential for and resolution of ethical conflict.

The knowledge gained through researching the areas included in the unit will enable you to approach future job roles in the computing profession in a responsible and ethical way.

Successful completion of the unit will be achieved by submission of a single assignment based on questions related to a case study/scenario of a real business situation.

The case study on which you will base your assignment submission will be available to you early in the unit scheduling and you will be able to ask your tutor questions to clarify your understanding of the details of the case study/scenario issued.

You will be issued a set of questions based on this case study/scenario to enable you to complete the assignment for assessing the unit. It may be possible to build your assignment throughout the scheduling of the unit for submission by a date specified by your tutor.