



Higher National Unit specification

General information

Unit title: Human Computer Interface (SCQF level 8)

Unit code: HF52 35

Superclass: CB

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Unit purpose

This Unit is designed to provide learners with an understanding and appreciation of the importance of the user experience (UX) so that they will be able to create interfaces that are receptive to user needs. The Unit will develop the skills required to identify the needs and goals of the users, to design, prototype and perform usability testing of human computer interfaces.

This Unit would be suitable for learners wishing to develop competence in developing successful websites, apps or games by understanding the requirements of a good user experience and designing interfaces receptive to user needs.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Analyse the factors influencing the user experience.
- 2 Design user interfaces receptive to user needs.
- 3 Develop user interface prototypes receptive to user needs.
- 4 Undertake usability testing of user interface prototypes.

Credit points and level

1 Higher National Unit credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

Higher National Unit specification: General information (cont)

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Recommended entry to the Unit

Access to this Unit will be at the discretion of the centre. However it is recommended that learners should have previous experience of studying Computing or Digital Media at Higher National Certificate level. Although differing programmes of study may be sufficient to prepare learners for this Unit, it would be beneficial if they have completed the HN Unit: F1VV 34 *User Interface Design*, prior to commencement.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

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

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

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.

Higher National Unit specification: Statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

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. Learners 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

Analyse the factors influencing the user experience.

Knowledge and/or Skills

- ◆ User analysis
- ◆ Task analysis
- ◆ User profiles/persona
- ◆ User expectations
- ◆ User needs and limitations
- ◆ User environments
- ◆ End-user platforms
- ◆ Design implications

Outcome 2

Design user interfaces receptive to user needs.

Knowledge and/or Skills

- ◆ Usability methods
- ◆ Layout
- ◆ Content
- ◆ Navigation
- ◆ Information Architecture
- ◆ Aesthetics
- ◆ Interaction
- ◆ Design tools

Higher National Unit specification: Statement of standards (cont)

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Outcome 3

Develop user interface prototypes receptive to user needs.

Knowledge and/or Skills

- ◆ Prototype
- ◆ Layout
- ◆ Content
- ◆ Navigation
- ◆ Information Architecture
- ◆ Aesthetics
- ◆ Interaction
- ◆ Functionality

Outcome 4

Undertake usability testing of user interface prototypes.

- ◆ Importance of usability testing
- ◆ Methods of usability testing
- ◆ Usability goals
- ◆ Analysis of usability testing results

Evidence Requirements for this Unit

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes.

The evidence for this Unit may be written or oral or a combination of these. Evidence may be captured, stored and presented in a range of media (including audio and video) and formats (analogue and digital). Particular consideration should be given to digital formats and the use of multimedia.

The Evidence Requirements for this Unit will take only one form — Evidence of practical competence (practical abilities) for all the Outcomes.

Candidates will be required to analyse, design, prototype and perform usability testing of user interfaces based on a given brief. Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they will be able to:

- ◆ Analyse factors influencing the user experience which includes:
 - Conducting and documenting a user analysis.
 - Conducting and documenting a task analysis.
 - Concluding design implications that will improve the user experience.

Higher National Unit specification: Statement of standards (cont)

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- ◆ Design user interfaces receptive to user needs which include:
 - Production of a detailed design for interfaces using appropriate design tools.
 - Log/blog of methods used to achieve usability.
- ◆ Develop user interface prototypes receptive to user needs.
- ◆ Perform usability testing of user interface prototypes which includes:
 - An explanation of the importance of conducting usability testing
 - Definition of the usability goals of the interfaces
 - The selection and use of suitable methods for carrying out the testing
 - An analysis of usability testing results

The brief used to gather evidence should be based on an area of study that the candidate is undertaking for example a website, game, mobile app or animation. This assessment could be integrated with an interactive digital media project that the candidate is undertaking in a different Unit.

Evidence of practical competence may be produced over an extended period of time. Evidence may be wholly or partly produced under controlled conditions. When evidence is produced in uncontrolled or loosely controlled conditions it must be authenticated. The *Guidelines on Approaches to Assessment* (see the Support Notes section of this specification) provides further advice on methods of authentication.

The *Guidelines on Approaches to Assessment* (see the Support Notes section of this specification) provides specific examples of instruments of assessment.



Higher National Unit Support Notes

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Unit Support Notes are offered as guidance and 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

This Unit is designed to provide learners with an understanding and appreciation of the importance of the user experience (UX) so that they will be able to create great interfaces that are receptive to user needs. The Unit will develop the skills required to identify the needs and goals of the users, to design, prototype and perform usability testing of human computer interfaces.

Outcome 1 is designed to give the learners knowledge and understanding of analysing briefs to enable successful usable interface design.

- ◆ User analysis including novice, intermittent and expert.
- ◆ Task analysis — information required, most important information, tasks performed by intended users, how the tasks are performed, how frequent the tasks are performed.
- ◆ User profiles/persona including profiles of the age, gender, physical abilities, education culture/ethnic background, training, motivation, goals, personality. This should result in a detailed description of one or more average users.
- ◆ User goals and expectations.
- ◆ User needs and limitations, skills and experience.
- ◆ User environments — location, technological.
- ◆ End-user platforms — devices, operating systems and browsers.
- ◆ Design implications.

Outcome 2 is designed to give the learners knowledge and understanding of designing usable interfaces utilising design tools, both paper and digital based like mock-ups, storyboards, low fidelity and high fidelity wireframes, HTML prototypes, site maps and navigation maps.

Usability methods for example consistency, standards, error prevention, feedback, flexibility, learnability, efficiency, memorability, satisfaction, feedback, aesthetics, orientation, findable information, understandable information, etc. For detailed current trends in usability check out Jacob Neilsons papers <http://www.nngroup.com/articles/>

Higher National Unit Support Notes (cont)

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Outcome 3 is designed to give the learners knowledge and understanding of developing user interface prototypes receptive to user needs from detailed designs produced in Outcome 2. The prototypes may be developed using any appropriate software that the learner is already familiar with. Knowledge of the iterative design process is important. Different approaches to prototyping (throw away, incremental, etc.) should be discussed and learners should be encouraged to throw away faulty designs. One prototype may not be enough for a particular case study so learners might have to produce an interface prototype to show the visual aspects, a navigation prototype showing the styles of interaction and working links.

Outcome 4 is designed to give the learners knowledge and understanding of undertaking usability testing user interface prototypes.

- ◆ Importance of usability testing
- ◆ Methods of usability testing — end users, set tasks, observation, feedback, questionnaires
- ◆ Usability goals — accessibility, ease of use, time taken to perform tasks, efficiency, accuracy, overall success and satisfaction
- ◆ Analysis of usability testing results — report based on the usability testing

Guidance on approaches to delivery of this Unit

In the delivery, learners should have access to the appropriate software for prototyping as well as internet access for research purposes. It would be of use to the learner if they had completed the Unit: User Interface Design, prior to taking this Unit as User Interface Design covers the visual design aspects of layout, type, colour and graphic design elements which are an important aspect of HCI.

During the holistic case study that covers the assessment for all Outcomes the learner must implement and log or blog the techniques and strategies they have applied to a website.

A suggested delivery sequence to this Unit would be the following:

- ◆ Outcome 1 should be taught and assessed first so the learner has the underpinning knowledge required for the remainder of the Unit. The learner has been asked to analyse briefs to enable successful usable interface design. These should be discussed and learners should have the chance to practice their analysis techniques before attempting the assessment.
- ◆ Outcome 4 usability testing should be taught before the learner is assessed on any other Outcome.
- ◆ Outcomes 2 and 3 are putting into practice the knowledge and skills gained in Outcome 1 and 4 and these Outcomes are naturally delivered in sequence.

The brief given could be for any appropriate digital media or software product. The brief used could be one that the learner has been given while studying another Unit.

Higher National Unit Support Notes (cont)

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Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to candidates.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where candidates experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Candidates are encouraged to use the Internet in any research, etc. however, the evidence produced must be the candidate's own words. Assessors should assure themselves of the authenticity of candidate's evidence.

Written and/or oral recorded, performance and product evidence is required which demonstrates that the candidate has achieved the requirements of all of the Outcomes to show that the candidate has appropriate knowledge and understanding of the content of this Unit.

The Unit should be assessed using a holistic assessment in the form of a case study that integrates each of these Outcomes. This assessment requires that the candidate be given a brief. This brief should be sufficient enough to allow the candidate to analyse, design, prototype and perform usability testing and covers all Evidence Requirements for all Outcomes.

The assessment should be carried out over an extended period.

The case study brief should be based on an area of study that the candidate is undertaking for example a website, game, mobile app or animation. This assessment could be integrated with an interactive digital media project that the candidate is undertaking in a different Unit.

In this case both assessments should be completed on an individual basis under open-book supervised conditions.

Assessors should ensure themselves of the authenticity of the candidate's evidence.

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 which wish 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.

Higher National Unit Support Notes (cont)

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Opportunities for developing Core and other essential skills

There are opportunities to develop the Core Skill of *Communication* (Written Communication) at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Human Computer Interface (SCQF level 8)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit is designed to teach about the interaction between users and computers and the importance of making interfaces more usable and receptive to the user's needs. It will allow you to develop the skills required to analyse end users, design, prototype and perform usability testing on a software or digital media product.

You will learn how to analyse the factors influencing the user experience (UX) and affecting usable interface design. This will include things like user analysis, task analysis, user profiles/persona, user expectations, user needs and limitations, user environments, end-user platforms and hence design implications.

You will learn how to design a usable interface by following usability procedures and using design tools.

You will learn how to develop usable interface prototypes for a specific brief.

And finally you will learn how to undertake usability testing of interface prototypes using different methods.

There will be at least one assessment for this Unit which takes the form of a case study that combines all Outcomes. You will be given a brief from which you will be required to analyse, design, prototype and perform usability testing. The brief could be for a website, game, app or another suitable digital media or software application.

There are opportunities to develop the Core Skill of *Communication* (Written Communication) at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.