



Higher National unit specification

General information

Unit title: Computer Games: Interaction Design (SCQF level 7)

Unit code: HH3A 35

Superclass: CB

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Version: 02

Unit purpose

The purpose of this Unit is to enable learners to gain knowledge and experience of designing interaction for digital products or services including computer games. The learner will apply a variety of methods and tools used to study interaction design. This Unit encompasses many disciplines such as User Interface (UI) User experience (UX), Information Architecture (IA) and Human Computer Interaction (HCI).

Since interaction design is used in almost all digital communications, this Unit is suitable for a wide range of learners studying software or games development, web development, or graphic design.

This Unit is valuable to attain for progressing to further studies at college and university level in a variety of computing science or design disciplines. There may be opportunities for learners to work within a small team to achieve some of the Outcomes for this Unit, but this is not mandatory.

Outcomes

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

- 1 Explain the essentials of interaction design within a digital product or service.
- 2 Apply methods to analyse the interaction design of a digital product or service.
- 3 Propose a version update as a result of the interaction design analysis.

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 is at the discretion of the centre. It may be beneficial but not essential to have completed Units such as F1VV 34 or HF55 34 *User Interface Design*, HH37 34 *Game Interface Design* or H17L 34 *Human Computer Interaction*.

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Critical Thinking at SCQF level 6 Planning and Organising at SCQF level 6

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

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.

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

Explain the essentials of interaction design within a digital product or service.

Knowledge and/or Skills

- ◆ User interaction, direct and indirect
- ◆ Key Elements of interaction design
- ◆ User Feedback and responsiveness
- ◆ Good interaction characteristics
- ◆ Error handling
- ◆ Constraints
- ◆ Laws of interaction design
- ◆ Recent developments

Outcome 2

Apply methods to analyse the interaction design of a digital product or service.

Knowledge and/or Skills

- ◆ Approaches to Interaction design
- ◆ Information Architecture
- ◆ User Requirements
- ◆ Research methods

Outcome 3

Propose a version update as a result of the interaction design analysis.

Knowledge and/or Skills

- ◆ Sketches and physical models
- ◆ Design tools
- ◆ Techniques to simulate interactions
- ◆ Prototyping

Higher National Unit specification: Statement of standards (cont)

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Evidence Requirements for this Unit

The Evidence Requirements for this Unit will take two forms:

- 1 Evidence of cognitive competence (Knowledge and Understanding) for Outcome 1.
- 2 Evidence of practical competence (practical abilities) for Outcomes 2 and 3.

Outcome 1 is knowledge based and requires that candidates demonstrate their cognitive competence.

Evidence of this may be sampled across the knowledge domain which must encompass all of the knowledge statements in Outcome 1. Where sampling is used to assess the candidate's knowledge and understanding, an appropriate pass mark should be set.

The assessment may take any form (including oral) but must be supervised, unseen and timed. The contents of the assessment must sample broadly and proportionately from the contents of the knowledge domain.

Access to reference material is not appropriate for this type of assessment. If other methods of assessment are used, such as a report, open-book conditions must be applied. Refer to the assessment guidelines for further information.

Outcomes 2 and 3 require that candidates demonstrate their practical competence in analysing the interaction design of a digital product or service, and then proposing an improved product or service based on the analysis. Candidates can work individually or as part of a small team to collate a portfolio of evidence which includes:

- ◆ An analytical report of an existing digital product or service detailing positive and negative features of interaction.
- ◆ Undertake and document more than one research method to analyse and propose an improvement of a digital product or service.
- ◆ Produce a user requirements specification to include a rationale for the updated version.
- ◆ Plan for and use two or more techniques to simulate the interactions proposed in the new version.
- ◆ Include design tools such as storyboards, mood boards and other relevant techniques in a presentation for the proposed version update.
- ◆ Pitch the proposed version update.

It is recommended that a holistic approach to assessment is taken and that the practical skills required for Outcomes 2 and 3 are assessed by a single assessment instrument. Suggestions for possible assessment methods are included in the guidance and support notes section of this Unit specification.

Evidence of practical competence for Outcomes 2 and 3 may be produced over an extended period of time under open-book conditions; but where it is generated without supervision some means of authentication must be carried out.



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

Interaction design is about designing for people to successfully use the vast array of digital products in everyday life. It is not just about how a product looks or the design of the interface, it's also about how easily and efficiently the users can achieve their objectives with the product. This Unit investigates the approaches to design and the tools and methods that can be used to best implement interaction in a digital product or service.

The product or service can be a web application, a video game, software or systems used to accomplish tasks. It can be on any device or platform that a user interacts with in order to achieve their goals.

Outcome 1 is theoretical in content and is designed to test the learner's knowledge of interaction design. Learners will be taught about key aspects to consider such as time, space, motion, appearance, texture, and sound. User interaction methods can be discussed and the use of feedback and response.

Any product constraints should be considered and the methods of error handling. For example, does the product constrain user input in anyway and if so is this beneficial? A beneficial example would be to constrain the user to use a mixture of upper case, numbers, and punctuation marks as part of a secure login. There could also be physical methods of constraint like having to be in a certain location on the GPS system of a gaming device or having to use a touch screen to drag and drop an object, or having to use certain keys on the keyboard to progress gameplay.

Error handling examples could be to consider whether there are any constraints in place to prevent or cut down on user errors in the first place for example areas on an interface not to be selected are greyed out. If a user makes an error what sequence of events then occur to help the user, or to prevent further errors. For example, do the error messages clearly explain why the error occurred and how to correct it? Does the error message include audio or other sensory output to alert the user that an error has occurred?

Some of the laws of interaction design such as Fitt's, Hick's, Tesler's, and new or recent developments can also be studied.

Higher National Unit Support Notes (cont)

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In addition, the following content should be included:

- ◆ Direct user interaction — this is when the user manipulates interface objects by touch, clicking, typing, dragging and voice commands
- ◆ Indirect user interaction — the system provides more information, for example a drop down menu can be directly selected from but then it will invoke a command or response itself without the user having to do anything.
- ◆ Characteristics of good interaction design — design that is appropriate, trustworthy, smart, responsive, clever, ludic (playful), pleasurable.
- ◆ Recent developments — this could be any field of current interest within games, software, or web design. At the time of writing, an example could include examining how the accelerometer within mobile devices has affected user interaction processes or the use of geolocation or 'smart apps' and 'clever devices'.
- ◆ Feedback — early and often and what form should it take
- ◆ Responsiveness — the system lets the user know what is going on, this could apply to error handling or guidance through a set of instructions or to input checking.

The purpose of **Outcome 2** is to review the approaches to interaction design that can be used to analyse a digital product. Examples that could be taught are user-centred or activity centred, Genius design, predictive design, or systems design. There are many to choose from and the tutor can select which approaches they wish to emphasise. Likewise, the research methods employed to study interaction design are many; suggestions would be varieties of observations, interviews, and activities. How information is organised for display or use is also an area to investigate. The priority of the whole design process is about the user requirements being met, in this Outcome the learner will apply their research methods to study an existing product and decide how they would devise an improved new product to be proposed in Outcome 3.

In addition, the following content may also be included:

- ◆ Research methods:
 - Types of observations — fly on the wall, shadowing, contextual enquiry, undercover agent
 - Types of Interviews — directed storytelling, focus groups, role playing, extreme-user interviews, desk/briefcase tour
 - Activities — physical modelling, collaging, self-reporting, brainstorming
- ◆ User Requirements:
 - Documentation
 - Information gathering, collation and organisation

Higher National Unit Support Notes (cont)

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Outcome 3 is about applying the knowledge gained in the previous Outcomes to devise a new product prototype. The learners will present their plans for this making use of a variety of tools and techniques and also explain the rationale for the update. There are many techniques that can be used such as:

- ◆ Personas
- ◆ Scenarios
- ◆ Use-cases
- ◆ Storyboards
- ◆ mood boards
- ◆ wireframes
- ◆ text or picture collages
- ◆ task analysis
- ◆ walkthroughs

The tutor should encourage the use of techniques that have ~~some from the range that has~~ been discussed or exemplified and that are best suited to the case study product. In addition, tutors should include the following when teaching prototyping:

- ◆ Paper prototypes
- ◆ Digital prototypes
- ◆ Physical prototypes
- ◆ Prototype testing

For Outcomes 2 and 3 it may be beneficial but not essential to work as part of a small team of ideally three people as this may enhance the analytical process and allow more research methods and techniques to be implemented within the timescale of the Unit.

Progression from this Unit would be to further studies in this subject area at college or university, it would also be a useful Unit for those who wish to work in the fields of UX, UI, or HCI.

This Unit relates to the following National Occupational Standards:

National Occupational Standards: Interactive Media published by Skillset, the Sector Skills Council for Creative Media (Feb 2013).

- ◆ IM5 Design Interactive Media Products
- ◆ IM6 Design Electronic Games
- ◆ IM7 Design User Interfaces for Interactive Media Products
- ◆ IM8 Determine the Implementation of Designs for Interactive Media Products
- ◆ IM9 Plan Content for Interactive Media Products
- ◆ IM25 Conduct User Testing of Interactive Media Products
- ◆ IM26 Test Electronic Games

Higher National Unit Support Notes (cont)

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Guidance on approaches to delivery of this Unit

The Outcomes should be taught in sequence, as each builds on the Knowledge and Skills gained in the previous.

Outcome 1 should be delivered first as the topics discussed and researched will provide a foundation for the subsequent Outcomes. It should be delivered using lectures, case studies of existing interactive products or systems, online materials and resources for learners to research.

Outcomes 2 and 3 have some topics that may overlap and it may be beneficial to teach elements together.

Outcome 2 should encourage skills in analysis by reviewing different design approaches and research methods. This can be introduced in the form of lectures or presentations or online materials using examples. For this Outcome delivery includes guidance and observation that the learner is implementing the correct methods and techniques that will lead to a feasible version update for the benefit of the users. The learner can select an imperfect product or system that interests them and they feel could be improved and then start to collate the evidence needed. If the tutor prefers they can choose a system or product and issue it as a project brief. It is recommended that learners work in teams due to the variety of methods and information gathering that can occur during this Outcome. However it is still possible to complete the work as an individual if team work is not possible.

Outcome 3 is a continuation of the work for Outcome 2, using the information they have gained to build and test a prototype of a version update of the system or product researched in the previous Outcome. Guidance and observation are important and lectures can consist of information about prototyping, user-testing and any other topics that would assist the learner to complete the project.

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.

Outcome 1 is cognitive in nature, it is recommended that the assessment takes the form of a set of objective questions where the candidate covers all of the knowledge and skills for this Outcome. Centres may wish to make this a closed-book with a pass mark of 60%.

Higher National Unit Support Notes (cont)

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Outcomes 2 and 3 assessments are practical in nature and could be accomplished using a project brief where an existing digital product or service is chosen to analyse for Outcome 2, and then a new improved product is proposed for Outcome 3. It may be beneficial and more efficient to work as part of a small team for both Outcomes. If this option is taken the assessor should ensure that each member of the team has contributed fairly to the workload. If an individual works alone the project work produced would not be the same size as that produced by three or four working in a team.

There are many ways to complete the documentation required, they can be in blog format and collated as part of an e-portfolio of work or, they can be developed as separate documents. If working in teams the e-portfolio of documents and other evidence stored in a shared area is an excellent way to collaborate and collate work.

Outcome 3 can be assessed by an oral presentation where the features of the new product are highlighted and pitched to an audience. The assessor may wish to photograph or video the pitches. The presentation could be added to the e-portfolio of collated work.

If candidates have worked as part of a small team for Outcomes 2 and 3 an observation checklist could also be implemented to ensure candidate participation. Peer evaluation checklists could also be used to ensure the workload has been evenly distributed.

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.

Opportunities for developing Core and other essential skills

There are opportunities to utilise the Core Skill of *Working with Others* at SCQF level 6 by allowing learners to collaborate in Outcome 2 and 3. In addition the Core Skill of *Problem Solving* at SCQF level 6 can also be implemented in Outcome 2 and 3 where the learners analyse a product and provide an improved solution.

This Unit encourages sustainable development as suggestions for improved interaction design will lead to the learner attempting to make an existing product more robust. Creative interaction design of a new improved product is an enterprising task which they could add to their portfolio of work to demonstrate to future employers. Taking responsibility for the design of better products for users to interact with demonstrates consideration of others and good citizenship.

This Unit has the Critical Thinking and Planning and Organising components of Problem Solving embedded in it. This means that when learners achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 6 and Planning and Organising at SCQF level 6.

Higher National Unit Support Notes (cont)

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Opportunities for developing Computational Thinking

There are opportunities to develop aspects of computational thinking throughout this Unit. Learners are expected to analyse interaction methods and sequences. This involves skills in analysis and recognition of common features. They are presented with a task and in order to accomplish it they will break it down into a series of smaller tasks.

History of changes to Unit

Version	Description of change	Date
02	Core Skills Components Critical Thinking and Planning and Organising at SCQF level 6 embedded.	21/02/17

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General information for learners

Unit title: **Computer Games: Interaction Design**

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.

In this Unit you will learn about good interaction design, key elements, laws, methods and models of interaction. You will learn how to analyse the interaction of a digital product or service and then propose an improved version. The aim of this is to try to improve the end user experience.

You may get the opportunity to work as part of a small team to conduct your research and analysis and then present a prototype for a version update on a product or service that interests you and you feel could be improved.

This Unit involves one theoretical assessment, and the remainder is assessed by collation and presentation of your practical and research based work.

The skills you will develop as you proceed through this Unit include analytical, research, and organisational skills. You may also develop team working and pitching or presentational skills.

Interaction designers are sought after in many creative and digital industries therefore, this Unit should provide a foundation for your future education or employment in this area.

This Unit has the Critical Thinking and Planning and Organising components of Problem Solving embedded in it. This means that when you achieve the Unit, your Core Skills profile will also be updated to show you have achieved Critical Thinking at SCQF level 6 and Planning and Organising at SCQF level 6.