Higher National Unit specification

General information

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

Unit code: HF3E 35

Superclass:	CB
Publication date:	June 2016
Source:	Scottish Qualifications Authority
Version:	01

Unit purpose

The purpose of this Unit is to introduce learners to the issues surrounding the development of media content for the inclusion within interactive products such as websites, apps or computer games. The Unit will cover technical and legislative aspects surrounding the creation and sourcing of a number of different media types including bitmap and vector images, video, audio and animated content. Learners will also be expected to develop their skills in the creation of digital content for inclusion within an interactive product.

The Unit is suitable for learners who have a basic understanding of the development of interactive products and wish to further develop their skills in the creation of digital content.

The Unit will cover a variety of key areas including copyright legislation and intellectual property rights, compression techniques used in different media types and the importance of understanding the constraints of a chosen platform. Learners will be expected to develop their skills in the production of digital content for use in an interactive product.

On completion of the Unit learners will have a much greater understanding of the restrictions faced by interactive media developers in regards to the inclusion of digital media content within an interactive product. Learners will also be aware of the importance of copyright legislation and related intellectual property laws when developing digital content.

Higher National Unit specification: General information (cont)

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

Outcomes

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

1 Describe legislative issues surrounding the sourcing and creation of digital content.
2 Describe the technical implications of deploying digital content.
3 Create digital media content and integrate it within an interactive product.

Credit points and level

2 Higher National Unit credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

Recommended entry to the Unit

Access to this Unit is at the discretion of the centre, however it is recommended that the learner should have completed or be in the process of completing the following Units or have proof of a similar level of experience:

F1VV 34   *User Interface Design*
Xxxx xx   *User Interface Design*
XXXX XX   *Digital Graphics Fundamentals*

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

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

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

Describe legislative issues surrounding the sourcing and creation of digital content.

Knowledge and/or Skills

- ♦ Intellectual property and related legislation
- ♦ Copyright legislation and restrictions on use
- ♦ Sourcing content legally

Outcome 2

Describe the technical implications of deploying digital content.

Knowledge and/or Skills

- ♦ Issues caused by file format and file size limitations for a variety of platforms
- ♦ Compression techniques for images, video and audio
- ♦ Artefacts caused by compression

Outcome 3

Create digital media content and integrate it with an interactive product.

Knowledge and/or Skills

- ♦ Plan digital content for an interactive product
- ♦ Create/capture digital content
- ♦ Source digital content
- ♦ Copyright and modifications
- ♦ Incorporate digital content within an interactive product

Higher National Unit specification: Statement of standards (cont)

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

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 two forms:

1   Evidence of cognitive competence which must encompass **all of the Knowledge and Skills statements** in **Outcomes 1 and 2.**
2   Evidence of practical competence must encompass **all of the Knowledge and Skills statements in Outcome 3**.

For Outcomes 1 and 2, candidates will be required to demonstrate that they will be able to:

♦   accurately describe the term intellectual property and current items of legislation relating to it.
♦   accurately describe the term copyright and related legislation and identifying the implications it has for a digital media creator.
♦   identify ways of legally sourcing digital content for use in an interactive product.
♦   identify issues surrounding file size and file formats for a variety of digital platforms.
♦   identify the main compression techniques related to image, audio and video content.
♦   describe the nature of compression artefacts related to different compression techniques.

Outcome 3 require that candidates demonstrate their practical competence in the creation of digital media content with supporting evidence in written and/or oral form. Candidates will be asked to create and acquire digital content and then incorporate this into an interactive product to meet a given brief. Candidates will be asked to provide the following evidence:

♦   A plan showing all digital media elements required for an interactive product
♦   Created digital media content which demonstrate at least two different media types (ie Image, Animation, Audio, Video, Game Assets)
♦   Sourced media elements which demonstrate at least two different media types (ie Image, Animation, Audio, Video, Game Assets)
♦   A log detailing copyright and modifications (including compression) made to each digital media element created and sourced
♦   A interactive product showing incorporated media elements

Evidence for some or all of the Outcomes 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.

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

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

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 80 hours.

Guidance on the content and context for this Unit

The purpose of this Unit is to give learners a greater appreciation for the legal and ethical issues surrounding the creation and sourcing of digital media and the technical limitations imposed by various platforms. It is also designed to allow the students scope to develop practical skills in the creation of digital media content and examine the processes used to integrate digital content within an interactive product.

It is a mandatory Unit within the HND Digital Design and Development and can also be taught standalone. It is recommended that this Unit is integrated with XXXX XX *Design and Develop an Interactive Product,* a core Unit within the HND Digital Development. Integration with XXXX XX *Design and Develop an Interactive Product* will allow learners to develop their own interactive product which requires media assets and gives a greater degree of context for Outcome 3 of this Unit.

Interactive Media elements for the purposes of this Unit could be defined as any of the following:

♦ Bitmap Images (ie banners, logos, graphical interface elements)
♦ Vector Images (ie diagrams, logos, illustrations)
♦ Audio (ie sound effects, music, ambient/background noise)
♦ Video (ie live action, CGI)
♦ Animation (ie 2D, 3D)
♦ Game Assets (ie 3D Models, game levels, animated sprites)

Although this list is not definitive it should give an indication of the type of media element that could be considered for the context of this Unit. Centres are encouraged to cover multiple different media elements and look at ways in which this Unit could be integrated with other Units which cover the creation of particular media types in greater detail.

Higher National Unit Support Notes (cont\0

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

Outcome 1

The primary purpose of this Outcome is to make learners aware of key concepts such as intellectual property and the importance of understanding copyright legislation when creating media elements for an interactive product. To put copyright law in context other legislation relating to intellectual property should also be covered to give learners a clear overview of trademark law, design rights and patents and how this may relate to the creation of digital content. Case studies would be appropriate to use here to illustrate particular examples of how these laws are employed in a real world context.

As it is expected that learners make use of sourced media assets in Outcome 3 ways of legally sourcing media assets should be examined and discussed (ie seeking permission, looking for works under creative commons licence or using royalty free assets). It would be beneficial to encourage students to examine licences attached to media assets downloaded from various online repositories and keep accurate records of where assets have been sourced from.

Outcome 2

Learners should be encouraged to look at how different platforms impose limitations upon the media assets being deployed on them. A prime consideration across multiple platforms will be file size. When creating assets for websites for example an end-users bandwidth must be considered when deploying assets whereas for when creating assets for inclusion in a mobile app the storage size of the device becomes a consideration. Some platforms may also impose limits on file types accepted — a good example would be around browser support for video and audio files which become problematic when developers must also consider legacy browsers.

Compression techniques should also be considered as many media developers will be required to use suitable compression when integrating their media assets within an application. Core concepts relating to image, video and audio compression should be covered including codecs and container formats, lossless and lossy compression, inter and intra frame compression for video and psychoacoustic compression for audio. It is not essential that learners give a detailed account of how codecs work but it is essential that they understand some of the basic principles and the effect that compression has when used aggressively.

Compression artefacts should also be covered and learners should be aware of the trade-off between file size and quality. Learners should be encouraged to experiment with different compression settings to achieve a well-balanced result and learn how to spot compression artefacts.

Unit title: Developing Digital Media for an Interactive Product
(SCQF level 8)

Outcome 3

The purpose of Outcome 3 is to give learners practical experience in the creation of media assets. Ideally his would be done as part of a larger project where learners design and build an interactive application from scratch which requires the use of multiple types of media. However if this Unit is not integrated with *Designing and Developing an Interactive Product* or other larger project then it is worth noting that for this Unit the learner only has to demonstrate that they can incorporate their assets within an interactive product — not create a product from scratch. A bare bones product could be supplied with placeholder assets for the purposes of the assessment.

Generally speaking these media assets should be created as separate elements and then integrated within an interactive product - for example animated buttons created using behaviours within an authoring environment or scripting language would not be considered as a separate media element.

Planning is also an important aspect of this Outcome and learners will be expected to demonstrate that they have planned appropriate to the type of media being created. For example learners wishing to create animated or video content would be expected to produce a storyboard; alternatively the creation of 3D models should be supported by the creation of reference drawings.

Guidance on approaches to delivery of this Unit

The delivery of the Outcomes is at the discretion of the centre, however it is advised that they are delivered in the sequence they have been written as Outcomes 1 and 2 should help prepare the learners for Outcome 3.

When discussing intellectual property and copyright law, case studies should be used to promote discussion and make the topic more interesting. One approach may be to ask the students to research a recent example where intellectual property law has appeared in the news and discuss this within a classroom setting. This can often promote interesting discussion of some of the less clearly defined areas of intellectual property law and helps put the theoretical side into context. It should also demonstrate the importance for any organisation or creative professional to be fully aware of intellectual property and copyright legislation.

CODECs and compression can be a difficult subject to teach as a true understanding of how compression works quickly becomes very technical. However the Unit only requires that basic concepts in compression are covered and what is more important is that learners are made aware of the end results of compression and what causes compression artefacts. One suggested approach to help students identify compression artefacts would be to analyse an image, video or audio clip which has been overly compressed and ask them to identify any compression artefacts they observe. This could be done initially as a group exercise as different people may spot different artefacts. This should prepare them for the practical element of Outcome 3.

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

Outcome 3 focus in much more detail on practical and creative skills where students are asked to plan and implement media elements for an interactive application. Once learners have been given a brief a useful exercise would be to research similar products and examine how media elements have been used to create a much richer user experience. Distinctions could be drawn between media which forms the content of an application and media which complements the user interface (ie button graphics, feedback sounds, etc). Learners should be encouraged to think creatively about the use of media elements within and application.

Visual research is a useful exercise when planning the creation of visual media and learners should be encouraged to look at other works and identify a visual style for the product they wish to create. This should then help guide them through the process of creating media assets and give them an overall aesthetic to which to aim.

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 will involve that candidates conduct research on the subject of intellectual property and copyright law. A suggested approach to the assessment for this Outcome would be to ask the candidates to research the topic and present their findings as if they were pitching to a client. Candidates could prepare and deliver a presentation on the topics in which they explained the core concepts surrounding intellectual property and copyright before explaining how their company sources media assets in a legitimate and legal way. A more traditional approach would be to produce a report which provides definitions of the core concepts possibly using case studies to illustrate specific examples of intellectual property disputes and copyright infringement. As this is a research based task candidates should be encouraged to properly reference their sources, this is good practice particularly for those wishing to progress to degree level study. Candidates should also be reminded that the majority of any written element should be in their own words and where they are quoting from other sources this should be clearly identified.

Outcome 2 could be assessed in a much more practical manner. Although candidates would be expected to provide written or oral definitions of a number of key concepts relating to the technical limitations of digital platforms, compression techniques and compression artefacts this could be done within the context of a practical task. One approach would be to provide candidates with uncompressed image/audio/video files and a brief which requires them to modify them for use on a given platform (there are a number of assets published by the Blender Foundation under Creative Commons licence ideal for this task). Candidates would then be asked to experiment by compressing the media in a variety of different ways and commenting on the final quality of the media (analysing any compression artefacts) and the resulting file sizes.

Higher National Unit Support Notes (cont)

Unit title: Developing Digital Media for an Interactive Product (SCQF level 8)

Outcome 3 could be assessed by an extended project with candidates given a brief to fulfil for the creation of digital media content. Ideally this would be linked to a project candidates are working on for another Unit and integration with *Designing and Developing an Interactive Product* as discussed previously. It is expected that the quality of the work produced for Outcome 3 should be clearly differentiated from the work produced at SCQF level 7. Emphasis should not be on the quantity of media elements produced but on the overall complexity and quality of the assets created.

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

The Unit provides opportunities to develop some of the following Core Skills:

♦ *Communication* (SCQF level 6)
♦ *Information and Communication Technology (ICT)* (SCQF level 6)

Several of the Core Skills in *Communication* may be addressed in this Unit. Depending on the approach taken by the centre then both written and oral communication could be employed in the assessment of Outcomes 1 and 2 (see guidance notes for suggestions on how to use presentations as a form of assessment).

Several of the Core Skills in *Information and Communication Technology (ICT)* may be addressed in this Unit. Learners will be expected to make use of digital media authoring environments to create content including still images, audio, video and animated content. In addition learners will be expected to understand and report on the limitation of certain platforms and the best way of incorporating digital content within an interactive product.

History of changes to Unit

Version	Description of change	Date

General information for learners

Unit title: Developing Digital Media for an Interactive Product
(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.

The purpose of this Unit is to introduce you to the issues surrounding the development of digital media elements for the inclusion within interactive products such as websites, apps or computer games and to develop your skills in the creation of digital content for inclusion within an interactive product. You will be required to create and source content across a number of different media types which may include:

♦ Bitmap Images (ie banners, logos, graphical interface elements)
♦ Vector Images (ie diagrams, logos, illustrations)
♦ Audio (ie sound effects, music, ambient/background noise)
♦ Video (ie live action, CGI)
♦ Animation (ie 2D, 3D)
♦ Game Assets (ie 3D Models, game levels, animated sprites)

The Unit will cover a variety of key areas including copyright legislation and intellectual property rights, compression techniques used in different media types and the importance of understanding the constraints of a chosen platform. You will be assessed on your understanding of these factors and expected to produce written and/or oral evidence covering these topics.

You will also be expected to develop your skills in the production of digital content for use in an interactive product. Assessment will take the form of a practical project in which you will be expected to create and source digital media content and integrate this into an interactive product.

On completion of the Unit you will have a much greater understanding of the restrictions faced by interactive media developers in regards to the inclusion of digital media content within an interactive product and a greater awareness of the importance of copyright legislation and related intellectual property laws when developing digital content. You will have also had the opportunity to further develop your creative skills by creating new content across a number of different media types and learn how to implement these within an interactive product.

The Unit will provide you with the opportunities to develop some of the following Core Skills:

♦ *Communication* (SCQF level 6)
♦ *Information and Communication Technology (ICT)* (SCQF level 6)