National Unit Specification: general information

UNIT Computer Games: Media Assets (SCQF level 6)

CODE F916 12

SUMMARY

The aim of this Unit is for candidates to analyse different media assets in computer games. Candidates will acquire an understanding of the different types of media assets required for developing a computer game. Candidates will identify current legislation relating to the acquisition of media assets and analyse its impact on the computer games industry. Candidates will learn how to plan and produce media assets for use in a game development environment and to gain experience in using media editing and project management software.

OUTCOMES

1 Analyse media assets in computer games.
2 Plan media assets for a specified brief.
3 Produce media assets for a specified brief.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, it would be beneficial if candidates had the following IT skills:

D01D 11 *Information Technology (Intermediate 2)*

or equivalent qualifications or experience.

CREDIT VALUE

1 credit at Higher (6 SCQF credit points at SCQF level 6*).

**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 Access 1 to Doctorates*.

Administrative Information

Superclass: CB

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Source: Scottish Qualifications Authority

Version: 01

National Unit Specification: general information (cont)

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CORE SKILLS

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

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.

OUTCOME 1

Analyse media assets in computer games.

Performance Criteria

(a) Accurately analyse media assets in computer games
(b) Compare the impact of media assets on computer games from the same genre.
(c) Explain why the media assets have been used by the game designers in existing games.
(d) Accurately analyse the impact of current legislation on the acquisition of media assets in the computer games industry**.**

OUTCOME 2

Plan media assets for a specified brief.

Performance Criteria

(a) For a specified brief, present a satisfactory solution within quality, time and technical constraints.
(b) Plan a schedule for acquisition and creation of the media assets in line with the identified solution.
(c) Clearly record sources for media assets.

OUTCOME 3

Produce media assets for a specified brief.

Performance Criteria

(a) For a specified brief, produce suitable advanced media assets.
(b) Carry out advanced modifications to selected media assets to accurately meet the brief.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

The Evidence Requirements for this Unit will be the production of a digital or paper portfolio containing the following items:

1 A report analysing at least four media assets in computer games. The report should include:
- a comparison of the impact of at least two media assets in two different existing games from the same genre.
- an explanation of why the assets have been used by the game designers and the effect they have on the games.

2 A report analysing the impact of current legislation on the acquisition of media assets.
3 A plan for producing media assets for a specified brief.
4 A schedule for acquiring and creating the media assets using project management software.
5 A reference list citing the sources of media assets. This must include details of assets sourced from game environments, CD-Rom resources, websites, etc.
6 At least three sourced media assets and at least three created media assets in a digital format for a game development environment, for example:
- graphics such as
  - sprites
  - background images
  - 3D objects (including characters)
  - 3D levels
  - textures (and associated files)
  - skyboxes
- videos
- animations
- audio such as
  - speech
  - sound effects
  - music
- text such as
  - text files
  - script files

7 A description of modifications carried out to at least six media assets.

Candidates are encouraged to use the internet in any research, however, the evidence produced must be their own words. Tutors should assure themselves of the authenticity of the candidates' evidence.

Written and/or oral recorded evidence is required which demonstrates that candidates have achieved all three Outcomes to the standard specified in the Performance Criteria. The evidence for all three Outcomes should be obtained under controlled, supervised conditions.

A checklist is required to confirm that each candidate has completed the above tasks, without undue assistance, to the standards defined in the performance criteria, and also to authenticate that the contents of the portfolio are the candidate's own work.

National Unit Specification: support notes

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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 length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

Outcome 1

Candidates will analyse media assets in computer games. Candidates may analyse two or three existing games and evaluate what impact the assets chosen by the games designers has on the games. Ideally the existing game being studied should be similar in genre or type to the game being designed by candidates.

Candidates will describe and analyse four assets from the following list:

Media Asset	Questions and points to aid analysis and comparison:
Graphics (including sprites, background image, 3D objects (including characters), 3D levels, skyboxes, textures)	Analyse the stages in creation of graphic: ♦ design ♦ concept art ♦ modelling ♦ texturing ♦ rigging ♦ animation ♦ special effects ♦ programming ♦ level design How does the quality of graphics add to the enjoyment of the game? Why should graphics card be upgraded? Discuss processor speed, memory capacity, clock speed, interface and power effect on graphics. The effect of image resolution and colour depth on file size and data-transfer rates. Will improved AI, physics, and graphics create more realistic games? Compare 2D with 3D Compare realistic sprites/backgrounds/textures v non-realistic sprites/backgrounds/textures. Do the visual effects eg lighting, shadows, warps, add to the game? Do background characters have their own independent existence?

National Unit Specification: support notes (cont)

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Media Asset	Questions and points to aid analysis and comparison
Videos	Moving image files in a format that is compatible with the game development environment Identify file types — wav, mp3 and Midi Discuss the difference between intraframe and interframe compression. Discuss the effect colour depth, resolution, frame rate and duration have on quality and file size. The effect of video sampling-rates and bit depth on file size and data-transfer rates.
Animations	Computer-based animations or moving image video files in a format that is compatible with the game development environment How can animations be used to give player feedback? What is an animation cycle? Compare stop-motion (frame by frame) animation to full motion video (FMV)
Speech	Compare voices: ♦ of humans or aliens, monsters or animal sounds ♦ outside in an open environment or inside a building ♦ talking loudly or whispering Does stereotyping in voices exist in this game? ♦ A strong male voice: does this convey — confidence, leadership, etc ♦ What about a deep, raspy, gruff voice? — gangster, old man ,etc ♦ What other stereotype voices are there? Do characters need to demonstrate different emotions? What are the options for getting right voice? ♦ cheap — family, friends. ♦ mid — local people who have worked on local radio and charge small fee ♦ expensive — talent agencies, famous actors, etc
Sound effects	♦ How does the quality of sound add to the enjoyment of the game? ♦ Does the sound effect add to the game (audio and narration — frightening, peaceful, fun)? ♦ How can sound effects be used to give a player feedback? Analyse sound effects: ♦ Compare the same sound effect with a different wavelength, frequency, amplitude. ♦ What are Straight sound effects? ♦ What are Foley sound effects? ♦ Where can you procure pre recorded sound effects? Sound libraries. ♦ Realistic v non-realistic such as synthetic sounds

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

Media Asset	Questions and points to aid analysis and comparison
Sound effects (continued)	Items to consider when creating sound effect: ♦ Environment, eg is echo required (cave), splashing (water) or debris (war)? ♦ Composition and texture: what is sound being made with metal, water, flesh etc. ♦ Volume and intensity — is it loud, soft. Is there a lot of sound or just a subtle sound? ♦ Length: long/short? ♦ Does sound have to synchronise with visual? ♦ Does it need a loop? ♦ Will sound need to vary — if not will it be annoying? Demonstrate an understanding of current sound technology: ♦ What is wavelength and what does it determine (pitch of sound)? ♦ What is a Slinky? What is the effect of compression and rarefaction? ♦ What is amplitude? ♦ What is frequency? ♦ How do you measure quality of sound? (bit depth, sample rate) ♦ The effect of audio sampling-rates on file size and data-transfer rates. ♦ Evaluate different types of data compression and their relative merits/demerits ♦ Evaluate mono, stereo, multi-channel and surround sound. Compare different types of data compression and their relative merits/demerits. Analyse industry standard software tools: ♦ Sound forge ♦ Wavelab ♦ Peak ♦ CoolEdit ♦ Protools ♦ Nuendo What is the appropriate decibel level for sound effect? ♦ whisper 15 dB ♦ rainfall 22dB ♦ rock concert 110 dB
Music	Music in computer games is usually background music that loops and repeats during the game play. How can music be used to give player feedback? How do you organise music in game? ♦ At opening song/music eg race game may have loud rock music. ♦ Selection: how does music grab user's attention? Usually at selection it is just the underlying beat or beat and chords as the player makes selection of characters, equipment etc. ♦ Gameplay: the music has to cover all emotional states such as win/loss. ♦ Credits: the music played at end. ♦ Compare music at selection v game play ♦ Compare linear music stream v interactive music ♦ Compare opening music versus win/loss and credits

National Unit Specification: support notes (cont)

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Media Asset	Questions and points to aid analysis and comparison
Music (continued)	Identify file types: ♦ midi ♦ aiff ♦ wav ♦ ac3 Compare industry standard software such as: ♦ Logic ♦ Cubase ♦ Protools ♦ Nuendo ♦ Gigastudio Compare mono, stereo, multi-channel and surround sound. Compare different types of data compression and their relative merits/demerits Identify the different technologies uses in music studio: ♦ samplers ♦ sequencers ♦ MIDI devices ♦ 'outboard' recording studio hardware ♦ mixing desks The effect of audio sampling-rates and bit depth on file size and data-transfer rates. Different formats in which music can be output and when it would be appropriate to use them. Evaluate different types of data compression and their relative merits/demerits. Evaluate mono, stereo, multi-channel and surround sound.
Text files	How are text media assets used in games: ♦ to provide dialogue ♦ create an atmosphere ♦ give player feedback ♦ instructions Compare different styles of writing and how they impact on different audiences. Compare file types txt, rtf Identify tools for checking grammar, punctuation and spelling. How to apply the principals of colour theory and typography and its effect on game play. Structure of text used for navigation How to clarify the purpose of the text and its target audience Awareness of different cultures and issues that arise from localisation and internationalisation of content.

National Unit Specification: support notes (cont)

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Current legislation (June 2010)	Possible impact of legislation
Digital Economy Act 2010 The Copyright, Designs and Patents Act 1988	Discuss how current legislation protects the games industry. ♦ establishing copyright ♦ pirating and distribution of illegal of software ♦ illegal downloading and sharing of software ♦ how do you protect your intellectual property? Discuss how legislation hinders the games industry. ♦ licensing ♦ censorship — too much violence, crime, promotion of drug use, racism will have an affect on censorship. Each country has its own censorship laws. ♦ procurement of existing assets Demonstrate an awareness of legitimate sources of acquiring media assets. Candidates are encouraged to obtain assets from legitimate sources such as stock libraries or video archives where the terms of use state that assets can be used and modified by others. Creative Commons is one way of licensing images, sounds and other creative works that lets others use the work legitimately. http://search.creativecommons.org Creative Commons gives creators the following options: ♦ Attribution: others can copy, distribute, display, and perform the copyrighted work — and derivative works based upon it — but only if they give credit to the original creator. ♦ Non-commercial: others can copy, distribute, display, and perform the work — and derivative works based upon it — but for non-commercial purposes only. ♦ No Derivative Works: others can copy, distribute, display, and perform only verbatim copies of the work, not derivative works based upon it. ♦ Share Alike**:** others can distribute derivative works only under a licence identical to the licence that governs the original work. Many websites and search engines offer ways to search for work that is labelled for reuse or labelled for reuse with modification. For example, Google allows users to set usage rights in advanced search. If using search engines to source assets, candidates should follow the link to check the licence details.

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

Outcome 2

Candidates plan and schedule the production of the media assets required by the brief. Candidates will develop skills in informed decision making about approaches and possible solutions to the design brief within the constraints of the game development environment.

Candidates will plan which assets they will source legitimately. Assets can be sourced by acquiring an image from somewhere or someone else, for example, downloading from a legitimate source on the internet. It will be helpful for candidates to have an idea of the type and quality of assets available from legitimate sources.

The list below of asset types and suggested uses is not restrictive. Candidates will plan to source, create and modify alternative types of suitable and feasible media for use within the game development environment.

- graphics: vector or bitmap images, such as photographs, sprites, tiling textures, background images, etc
- sprites: a figure or character within a game. Sprites usually have a transparent outline and can be animated to simulate movement. Characters in some games are also known as avatars.
- textures: textures are images that are mapped onto surfaces of objects such as stone walls and wooden tables
- background images: a type of texture that shows a landscape image
- skyboxes: in 3D games a skybox is a cube with background images that surrounds the game player
- videos**:** moving image files in a format that is compatible with the game development environment
- animations: computer-based animations or moving image video files in a format that is compatible with the game development environment
- 3D objects (including characters): Items or characters that can be placed within the game
- 3D levels: laying out the areas of game play, such as hills, cities, rooms, tunnels, etc, for players and characters to move around in
- speech: voices for characters
- sound effects: noises of objects in the game
- music: background music that usually loops and repeats during the game play
- text files: text needed for the game such as dialogue or instructions
- script files: code for using within the game development environment

Selection and effective use of appropriate media, software and processes will be of importance throughout and candidates should have the opportunity to explore a variety of media asset types and software applications.

Candidates will plan a schedule for the acquisition and creation of media assets required. Candidates should be encouraged to use project management software such as Gantt Project to ensure that timelines are set, tasks and resources are allocated, tracked and monitored. Assets can be captured using input devices, such as recording the sound input from a microphone, scanning a graphic or typing in text using a keyboard. Assets can be created using tools in software packages.

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

Candidates should record the sources of their media assets

The table below demonstrates the minimum level of detail required to plan a solution for the given brief that satisfies quality, time and technical constraints.

Asset name	Asset type	Source/capture or create	Description of asset	Estimated time to source/create
Hero graphic	Sprite	Create using Flash	Appearance: human male large 3D Colour of hair: black, Costume: medieval warrior Behaviour: good, strong	Two hours
Villain graphic	Sprite	Create using Flash	Appearance: human, male, large, 3D Colour of hair: blonde Costume: medieval warrior Behaviour: evil, strong	Two hours
Princess graphic	Sprite	Source	Appearance: human, female, small, 3D Colour of hair: blonde Costume: medieval princess Behaviour: good, strong	Two hours
Background image	Background images	Source	Medieval village, sunny day	One hour
Level 1	3D levels	Lay out the areas of game play for players and characters to move around in	hills, cities, rooms, tunnels, etc, size and dimensions	Two hours
Hero sprite voice	Speech	Create	Loud, male, low pitch	One hour
Bad weather	Sound effects	Create	Rain	30 minutes
Background music	Music	Source	Music clip loops throughout game	30 minutes

National Unit Specification: support notes (cont)

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Outcome 3

Candidates will source media assets legitimately and acknowledge copyright and permissions for media assets. They will capture a variety of media assets using appropriate devices and create media assets using software tools. They will then modify assets as required by the brief. Candidates will be expected to store all assets using appropriate file formats and file management.

It may be that not all of the media assets are used in the final game. Some media assets may be used or created by candidates as a way of progressing lines of development. As part of the process of creating assets candidates may make different versions of an asset and select the best option.

Assets can be produced by being sourced, captured or created.

Candidates will source at least three media assets and capture or create at least three media assets.

Candidates will carry out advanced modifications using combinations of advanced editing tools and filters in software packages.

The following are examples of actions that can be carried out on various media asset types. Candidates can source, create and modify alternative types of media as long as they are suitable for use within the chosen game development environment. The list is not restrictive and not all actions listed would be carried out on the same asset.

Actions listed in italics would be carried out as part of the Unit *Computer Games: Development* and not as part of this Unit. These are included for information only.

Sound

- source using for example www.freesound.org; freeplaymusic.com
- capture using appropriate software and a microphone; mobile phone
- create using for example Garageband
- advanced modifications such as: chain multiple soundtracks together; normalise a soundtrack; modify using software tools and filters to eliminate noise, attenuate high frequencies; alter compression by selecting RIFF, WAV, MP3; alter the sampling frequency; alter the sampling depth
- *[import into game development environment for speech for an avatar or character; sound effect for an object; background music]*

Vector graphics

- source using for example aviary.com or a vector image library
- create using for example aviary.com, Inkscape, DrawPlus or similar vector graphics or illustration software
- advanced modifications such as: multiple layering; applying layering styles; altering perspective
- *[import into game development environment as an object]*

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

Bitmapped graphics (including photographs, textures and sprites)

- source using for example www.flickr.com/creativecommons or another legitimate source of images
- source using online websites
- capture using a digital camera, webcam, mobile phone, scanner
- create using a graphics package or for example paint.net, PaintPlus, Artrage or similar image editing or paint software and a mouse or graphics tablet.
- advanced modifications such as: increase colour depth; alter resolution; alter perspective
- [i*mport into game development environment as an object, object or skybox texture, sprite, background graphic]*

Video

- Advanced modifications such as alter compression; assemble multiple clips using timeline; use effects filters such as split screen, blur, lens distortion, sharpen, ghosting, replicate; alter lighting; change the aspect ratio; stabilise a clip.

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

If this Unit is undertaken as part of the NPA in Computer Games Development at SCQF level 6, the following sequence of delivery is recommended:

1 *Computer Games: Design*
2 *Computer Games: Media Assets*
3 *Computer Games: Development*

If this Unit is undertaken as part of the NPA in Computer Games Development at SCQF level 6, the following items should have been produced by candidates during the Unit *Computer Games: Design.*

- game design brief
- game design document (or plan)
- a list of required media assets

If these items have not previously been produced by candidates they will have to be provided by the tutor or planned by candidates in agreement with the tutor.

In this Unit, candidates will create and prepare the media assets for a computer game.

There are ample opportunities for delivering this Unit in groups and in a vocational context. Candidates could already have formed groups (studios) to design a game. It would then be natural for them to all contribute to the development of the game assets however the contribution of each candidate must be clearly demonstrated in the process. One approach might be that they each contribute distinct assets for the game or that they each produce their own version of the assets. These approaches could allow them to compare and evaluate each others efforts.

It is essential that each candidate identifies their own contribution to the task if working in a group and that they provide evidence for their own portfolio.

The actual distribution of time between Outcomes is at the discretion of the centre. However, the following distribution and order is suggested.

Outcome 1 5 hours
Outcome 2 5 hours
Outcome 3 30 hours

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates are required to design and create media assets for a computer game, which can provide opportunities to gather evidence towards aspects of *Information and Communication Technology* and *Problem Solving* at SCQF level 6.

This Unit may be delivered as a group project. This would provide opportunities to gather evidence towards aspects of *Working with Others* at SCQF level 6.

National Unit Specification: support notes (cont)

UNIT Computer Games: Media Assets (SCQF level 6)

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

A portfolio approach to assessment should be taken. The portfolio may be paper or electronic (digital). The portfolio should be constructed over the period of the Unit, with candidates contributing material to the portfolio on an on-going basis. The contents of the portfolio should be clearly labelled and related to specific Evidence Requirements. The inclusion of specific items in the portfolio should be negotiated between candidate and tutor with only the 'best' example of the work should stored.

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 e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003), SQA Guidelines on e-assessment for Schools (BD2625, June 2005).*

If an e-portfolio is used to capture candidates' work, it may take one of a variety of forms, ranging from general purpose digital repositories to specialised e-portfolio products. For example, a web log could be used to record candidate activity over the duration of the Unit. Specific entries to the blog could provide sufficient evidence in their own right (for example, a required identification) or could link to a file stored in another web service (such as a file hosting site). The use of a blog would aid authentication since any record of a candidate's day-to-day activities would provide implicit evidence of participation and ownership.

If a candidate is undertaking this Unit as part of the NPA in Computer Games Development at SCQF level 6 then the evidence should be retained as part of a portfolio of work required for the Units *Computer Games: Design* and *Computer Games: Development* (SCQF level 6).

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**