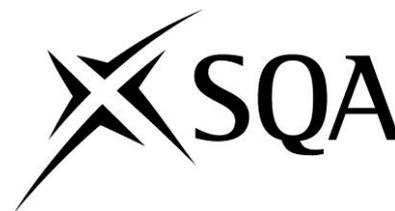


Higher National Unit specification



General information for centres

Unit title: Game Customisation and Scripting

Unit code: F8L2 35

Unit purpose:

This Unit is designed to develop candidates' knowledge of immersive level design within a commercially available, industry standard scripting and editing environment. The Unit will provide the knowledge and skills to interpret a level brief and produce an environment with customised interactive elements using an industry standard editing toolset. It is primarily intended for candidates who intend to follow a career within the computer games development industry as a level designer or in a similar related role.

On completion of the Unit candidates should be able to:

- 1 Produce a technical reference for a level to be created within a game development environment from a given brief.
- 2 Construct and texture geometry, objects and actors as specified in the technical reference.
- 3 Create and apply custom behaviour scripts for objects and actors as specified in the technical reference.
- 4 Observe the level being playtested and refine scripts as appropriate.

Credit points and level: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8*)

**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.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. However, it is recommended that candidates have experience of current games construction in terms of environment maps or levels, an understanding of computer games technology and IT generally. This may be demonstrated by completion of F869 34 *3D Level Editing* or equivalent qualifications or experience.

Core Skills: There are opportunities to develop the Core Skill of *Problem Solving* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

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.

General information for centres (cont)

Assessment: All Outcomes are assessed using a single project requiring the candidate to create and collect all the necessary evidence including design, development and analysis work.

Candidates will produce a technical design document based on the given specification (Outcome 1), develop the actual playable level (Outcomes 2 and 3) as well as conduct and record observed testing of the playable level by third parties. The content of this evidence is described in the Outcomes listed below.

The assessment project should be completed on an individual basis under open-book supervised conditions.

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

Higher National Unit specification: statement of standards

Unit title: Game Customisation and Scripting

Unit code: F8L2 35

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

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

Produce a technical reference for a level to be created within a game development environment from a given brief

Knowledge and/or Skills

- ◆ How to analyse a level brief
- ◆ Level technical references, their construction and use in level designs

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ analyse a level brief for content
- ◆ create a technical reference from a brief

By means of a practical assignment comprised of the following:

From a level brief written in an informal prose style as might be found in a larger game design document, candidates must create a technical reference containing:

- ◆ a drawn environment map showing all points of interest and placeable objects/actors. This evidence can either be hand-drawn or created with a computerised drawing package, but cannot be produced using the target game development environment.
- ◆ a list of all non-static objects and actors containing a count, position, any customisation to attributes and non-standard scripts that affect them
- ◆ pseudo-code for all custom behaviour scripts to be included

Assessment Guidelines

The level brief to be drawn from must be provided by the Tutor and should form a 'narrative walkthrough' description of how the player is expected to interact with the environment. It should describe between two and four 'scenes' (in the case of levels where traversing the environment is the player's goal) or complex interactions (where the player must investigate through conversation) or a combination of the above. Between 200 and 400 words (one half page) is recommended to ensure enough guidance to meet the complexity required without limiting the scope of work required for Outcome 2.

Higher National Unit specification: statement of standards (cont)

Unit title: Game Customisation and Scripting

Outcome 2

Construct and texture geometry, objects and actors as specified in the technical reference

Knowledge and/or Skills

- ◆ Environment building
- ◆ Object/actor/trigger/tag placement and preparation for scripting
- ◆ Association of scripts with objects/actors/triggers/tags
- ◆ Association of scripts with event handlers

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ create the environment specified in the technical reference using the tools and resources provided by the editor and game engine
- ◆ effectively name and tag game entities for use by scripts
- ◆ effectively hook scripts into game event handlers

This evidence will take the form of the actual playable level covering the items above, compiled or prepared as appropriate for redistribution.

This Outcome may be assessed in conjunction with Outcomes 3 and 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Game Customisation and Scripting

Outcome 3

Create and apply custom behaviour scripts for objects and actors as specified in the technical reference

Knowledge and/or Skills

- ◆ Trigger animations or spawn actors and/or objects based on player position
- ◆ Cause actors and/or objects to respond in a variety of ways to player interaction
- ◆ Have actors and/or objects recognise player progress through objectives
- ◆ Modify player resources during play
- ◆ Create timed events and recurring events
- ◆ Create ‘library’ scripts capable of being generically applied

Evidence Requirements

Candidates must provide evidence of **at least** five of the six skills listed above as appropriate to the level brief and technical capabilities of their chosen development environment

This evidence will take the form of the actual playable level covering **at least** five of the six items above, compiled or prepared as appropriate for redistribution.

This Outcome may be assessed in conjunction with Outcomes 2 and 4.

Assessment Guidelines

The following give examples of the common game conventions and events that are controlled by the script types listed above.

- ◆ **Trigger animations or spawn actors and/or objects based on player position.** This is commonly typified by game events like a door opening or a movie playing on a ‘screen’ as a player approaches or an enemy appearing in a side room when the player passes a certain point.
- ◆ **Cause actors and/or objects to respond in a variety of ways to player interaction.** This is frequently running or fighting if attacked, but talking if the player is not hostile.
- ◆ **Have actors and/or objects recognise player progress through objectives.** A non-player character (NPC) should be able to remember whether they have met before, and react appropriately.
- ◆ **Modify player resources/attributes during play.** Frequently, this is removing or adding ‘inventory’ items, but equally valid are changes like scripted removal/restoration of ‘health’ or sudden involuntary movement (‘teleporting’).
- ◆ **Create timed events and recurring events.** Examples could be doors opening on a timed switch, explosion countdowns, respawning enemies or moving platforms.
- ◆ **Create ‘library’ scripts capable of being generically applied.** Scripts such as ‘run away when attacked’ should be constructed so they can be easily re-used with different game entities.

Higher National Unit specification: statement of standards (cont)

Unit title: Game Customisation and Scripting

Outcome 4

Observe the level being playtested and refine scripts as appropriate

Knowledge and/or Skills

- ◆ Understanding of the impact free actors have on scripted events
- ◆ Methods of observing interactive software under test conditions
- ◆ Review and revise scripts
- ◆ Documentation of refinements

Evidence Requirements

Candidates must complete a player observation sheet for full playtests by at least two players (they cannot observe their own playtest). The Tutor may provide a template observation sheet. One such playtest should also be observed by the Tutor to ensure the candidate adheres to good observation practices and that an observation sheet is authenticated by the Tutor with the candidate name, candidate ID, Tutor name, Tutor signature and date.

Once the observation has been completed, candidates should adjust their playable level and then review their submission, updating/amending/annotating their evidence as appropriate.

Administrative Information

Unit code: F8L2 35

Unit title: Game Customisation and Scripting

Superclass category: CB

Original date of publication: August 2009

Version: 01

History of changes:

Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Game Customisation and Scripting

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 80 hours.

Guidance on the content and context for this Unit

This Unit is intended to develop level design skills and aims to extend candidates confidence in making the transition from the design elements of the course to the programming elements. In addition, it is intended that the assessment element of this Unit will provide candidates with a valid artefact that can form a part of a viable portfolio for entry into the industry.

Scripting has become embedded in many popular video games and producing new content for existing games has become a valid entry route into the industry. Careful selection of a game with an appropriate scripting environment requires a degree of knowledge of the games industry, but can be obtained for a low cost per 'seat' and learning resources are freely available from both 'official' and community driven projects for free or purchase.

Guidance on the delivery and assessment of this Unit

Given the complexity of geometry manipulation and scripting in game development environments, it is recommended that this Unit be delivered to candidates who have completed F869 34 *3D Level Editing* and it is anticipated that the Unit would be delivered within the second year of an HND programme.

Although the actual toolset to be used is at the discretion of the centre, here is a non-exhaustive list of published games with sufficiently advanced editing environments to meet the requirements of this Unit:

- ◆ TES Construction Set (Morrowind, Oblivion)
- ◆ Warcraft III World Editor (Warcraft III)
- ◆ Electron toolset (Neverwinter Nights 2)
- ◆ Source SDK (Half-life 2 and others)
- ◆ UnrealEd/Kismet (Unreal Tournament and others)
- ◆ cryENGINE (FarCry)

This Unit could be delivered on a weekly or bi-weekly basis at the discretion of the centre. A typical delivery for the Unit might follow the following pattern:

Stage 1

Candidates should be encouraged to play the game associated with the editor and scripting environment they are to be using. Although centres are advised to provide unsupervised time for this activity, it is recommended that they provide initial guidance on effective analysis of a game through play.

Higher National Unit specification: support notes (cont)

Unit title: Game Customisation and Scripting

Stage 2

Candidates must develop technical programming skills to be used in the scripting environment. The knowledge and skills required should be delivered through tutor led demonstrations and practical tutorials though opportunities for support through Internet research and community participation and further blended learning approaches are viable. It is envisioned that this section will constitute the majority of the taught element of this Unit.

Stage 3

Candidates must observe playtests of their level and adjust their scripts to be more robust as appropriate. It is recommended that centres consider providing candidates with the project brief and assessment requirements early on in the delivery schedule to focus their learning.

The assessment should take a substantial number of weeks to complete and deadlines should be set for completion of each of the design, development and evaluation stages.

Centres must ensure that candidates' level briefs and technical references provides sufficient complexity to ensure all Outcomes are covered effectively and are attainable within a reasonable timeframe.

In order to illustrate how a level brief can be constructed to effectively integrate all aspects of the assessment, here are two sample briefings for different environments with markers showing their relevance to Outcome 3.

- 1 Trigger animations or spawn actors and/or objects based on player position.
- 2 Cause actors and/or objects to respond in a variety of ways to player interaction.
- 3 Have actors and/or objects recognise player progress through objectives.
- 4 Modify player resources during play.
- 5 Create timed events and recurring events.
- 6 Create 'library' scripts capable of being generically applied.

Level Brief: The Cuckoo's Nest Tavern

This traditional tavern is owned by the human mage 'Felix' assisted by the bartender 'Faith' and tables waited by 'Barwell'. 'Kestrel' the bard is singing in the corner. Player should be able to talk to Felix, Faith and Barwell. None should have previous knowledge of the players.

Felix should quiz the player and if they admit to being an adventurer, will offer to pay them to travel to Arentia with a package for 'Adil' in the Explorer's League. If the players accept, 'Package for Adil' should be added to their inventory^[4] and their quest log updated appropriately. Further conversations after accepting the quest with Felix^[3] should encourage the player to get going. Further conversations after rejecting the quest or denying being an adventurer, Felix will be polite, but not conversational.

Faith will welcome the player to the cuckoo's nest and allow them to buy food or drink or rent a room for the night (reset health to full)^[4]

Higher National Unit specification: support notes (cont)

Unit title: Game Customisation and Scripting

Barwell will randomly ‘wait tables’, talking to the patrons, then returning to the bar. This should be signalled though text emotes as he takes an order, then gives it to Faith, then returns to the patrons.^[5] If the player is currently talking to Faith, he should wait for them to finish grumbling about the ‘thirsty regulars’ if they take too long.^[5]

If the player goes behind the bar, Faith should tell them to leave.^[1] If the player attacks anyone^[2], all the patrons should run randomly in fear^[6], Felix and Barwell^[6] should attack them and Faith should run to the door shouting for guards.

Level Brief: The Docks

This area should consist of a docked ship, and a semi-stocked warehouse with an overhead walkway fenced off with chain link fences and other warehouses. To gain access to the ship, the player must cross the docks, travel through the warehouse, up and across the overhead walkway and out to the ship’s berth.

Two enemy types should patrol the area — dockers and guards in various groups. Dockers should run and cower if shot at, guards will return fire and seek cover as appropriate if shot at or sighting the player.^{[2][6]}

Players should enter from a guarded security hut with mounted machine gun next to it. There should be a guard on the mounted machine gun. If he sees the player he should try to run from the machine gun to the hut, trigger an alarm and then return to the machine gun and start shooting.^[2] Note that if the player manages to kill the guard before the alarm is triggered, and then walks up to the alarm and triggers it themselves, the same thing happens...

If the alarm is triggered, 2 waves of 4 guards should spawn in the warehouse and seek the player. This will continue until the player disables the alarm in the hut.^[5] All guards from that point on should be upgraded with Kevlar body armour.^{[1][3]}

After passing the security hut, their mission status should update to ‘Gain access to ship’.^[3]

Some crates should explode when shot, issuing a brief green cloud of smoke that will reduce the players health immediately to 1% if they are close enough.^[1] Their health should then slowly return to normal over the next 60 seconds.^[4]

The doors from the warehouse to the ship are locked. They must use the crane hatch at the end of the covered walkway. However, the crane hatch must be opened from the other end of the walkway via a switch which will only hold the door open for 10 seconds — long enough for the player to make it if they sprint!^[5]

Opportunities for developing Core Skills

In this Unit candidates are required to develop a solution to specified criteria with limited resources, and within a proscribed environment. The achievement of this Unit may give opportunities for candidates to gather evidence towards the Core Skill of *Problem Solving* at SCQF level 6..

Higher National Unit specification: support notes (cont)

Unit title: Game Customisation and Scripting

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources will be required for candidate support, assessment and quality assurance.

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

General information for candidates

Unit title: Game Customisation and Scripting

This Unit is designed to develop your knowledge of immersive level design within a commercially available, industry standard scripting and editing environment. The aim of the Unit is to provide you with the knowledge and skills to interpret a level brief and then go on to develop and script a level within the chosen editing environment.

You will be assessed on developing a working level based on a given design and using the knowledge and practical skills you have learned in this and other units. There is one assessment for this Unit, which covers all the Outcomes.

In Outcome 1 you expand on a given level brief to produce a short technical reference detailing level geometry, objects and actors and details of all behaviours will be required to complete the task.

In Outcome 2 you will build the level you have designed within the chosen level editing software package and include the required number of features and elements.

In Outcome 3 you will create and apply custom behaviour scripts to the objects and actors within that level

In Outcome 4 you will allow your level to be playtested, observe the results and adjust your scripts as necessary.

On completion of the Unit you should be able to:

- ◆ Create a technical reference from a given project brief
- ◆ Create a prototype level within a level editor software package, then add customised effects, actions and reactions to objects and actors for a given project brief
- ◆ Playtest and refine the level you have created.