National Unit Specification: general information

UNIT Computer Games: Design (SCQF level 5)

CODE F915 11

SUMMARY

The aim of this Unit is for candidates to gain an understanding of underlying concepts and fundamental principles involved in computer game planning and design. Candidates will learn how to recognise and compare differences between gaming platforms, environments and genres. Candidates will be introduced to the role of the games designer, and to fundamental methods used in the planning and design stages of a computer game. Candidates will plan and design a computer game.

OUTCOMES

1 Compare gaming technologies.
2 Analyse design elements.
3 Plan and design a computer game.

RECOMMENDED ENTRY

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

D01D 10 *Information Technology* (Intermediate 1)

or equivalent qualifications or experience.

Administrative Information

Superclass: CB

Publication date: July 2010

Source: Scottish Qualifications Authority

Version: 01

National Unit Specification: general information (cont)

UNIT Computer Games: Design (SCQF level 5)

CREDIT VALUE

1 credit at SCQF level 5 (6 SCQF credit points at SCQF level 5*).

**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.*

CORE SKILLS

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

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

National Unit Specification: statement of standards

UNIT Computer Games: Design (SCQF level 5)

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

Compare gaming technologies.

Performance Criteria

(a) Accurately compare hardware specifications of gaming platforms.
(b) Accurately compare control and output devices of gaming platforms.
(c) Accurately analyse emerging technologies in gaming.

OUTCOME 2

Analyse design elements.

Performance Criteria

(a) Clearly describe the role and attributes of a games designer.
(b) Accurately analyse design elements from observable design areas in an existing game.
(c) Create a clear and accurate flowchart of game play from an existing computer game.

OUTCOME 3

Plan and design a computer game.

Performance Criteria

(a) Produce a clear, concise and feasible design brief for an intermediate level computer game.
(b) Produce a plan for the computer game consistent with the design brief.
(c) Produce a list of assets consistent with the plan for the computer game.

National Unit Specification: statement of standards (cont)

UNIT Computer Games: Design (SCQF level 5)

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 short report comparing hardware specifications of two gaming platforms. Accurately identify by type, name, processor, memory, graphics configuration, backing storage capacity, whether wired or wireless, sound quality and internet connectivity.
2 A short report accurately comparing control and output devices of two gaming platforms.
3 A short report analysing two emerging technologies in gaming.
4 A short report describing the role and attributes of a games designer.
5 A short report accurately identifying aspects of detail and creativity from three design elements.
6 A clear and accurate flowchart of one logical sequence from a game.
7 A clearly written, concise and feasible design brief for an intermediate level computer game containing at least five design elements**.**
8 A plan which includes at least three design elements for a computer game.
9 A list of assets required for a computer game.

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

UNIT Computer Games: Design (SCQF level 5)

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 OF THIS UNIT

This Unit is a mandatory Unit of the NPA in Computer Games Development at SCQF level 5. It is included in the optional sections of Digital Media Computing frameworks and can be taken as a standalone Unit.

Outcome 1

Candidates will become familiar with various types of digital gaming platforms and related technologies. These may be located in manufacturers' web pages, catalogues, magazine reviews and within software help menus and documentation.

Candidates will compare three gaming technologies for two different gaming platforms. Candidates will extract and compare information regarding hardware specifications such as processor, memory, graphics configuration, backing storage capacity, wired or wireless, sound quality and internet connectivity from gaming platforms which may include the following:

- portable gaming platform (psp, nds, pandora, gp2x wiz)
- games console (xbox360, ps3)
- PC (Windows, Mac OS X, Linux)
- software platforms (flash, java)
- mobile operating systems (Symbian, RIM Blackberry, Windows, Apple iPhone , Google Android, other (Palm/Linux))
- other devices: eg skybox, portable media players

For more information see:

http://en.wikipedia.org/wiki/Computing_platform
http://en.wikipedia.org/wiki/Handheld_game_console
http://en.wikipedia.org/wiki/Mobile_game

Candidates will compare the control and output devices of two different gaming platforms.

Control (input) devices such as:

- analogue/digital controls
- touch screen, pointing device
- position sensor, movement sensor/accelerometer
- microphone
- camera
- gps
- specialist devices: dance mat, drums, guitar, musical keyboard

For more information see:

http://en.wikipedia.org/wiki/Game_controller

Output devices such as:

- external display (television screen, monitor, projector), built-in display
- speakers
- force feedback, rumble/vibration

Candidates will analyse at least two emerging gaming technologies. Some examples may include:

Location based gaming (LBG)

A **location-based game** (or **location-enabled game**) is one in which the gameplay somehow evolves and progresses via a player's location. Thus, location-based games almost always support some kind of localisation technology, for example by using satellite positioning like GPS. 'Urban gaming' or 'street games' are typically multi-player location-based games played out on city streets and built up urban environments. Current research trends are looking to other embedded mobile technologies such as Near Field Communication, Bluetooth, and Ultra Wide Band (UWB).

For more information see source: http://en.wikipedia.org/wiki/Location-based_game

Augmented Reality

Augmented reality (AR) is a term for a live direct or indirect view of a physical real-world environment whose elements are merged with (or augmented by) virtual computer-generated imagery creating a mixed reality. The augmentation is conventionally in real-time and in semantic context with environmental elements, such as sports scores on television during a match. With the help of advanced AR technology (eg adding computer vision and object recognition) the information about the surrounding real world of the user becomes interactive and digitally usable. Artificial information about the environment and the objects in it can be stored and retrieved as an information layer on top of the real world view. Augmented reality research explores the application of computer-generated imagery in live-video streams as a way to expand the real-world. Advanced research includes use of head-mounted displays and virtual retinal displays for visualisation purposes, and construction of controlled environments containing any number of sensors and actuators.

For more information see source: http://en.wikipedia.org/wiki/Augmented_reality

National Unit Specification: support notes (cont)

UNIT Computer Games: Design (SCQF level 5)

Controller free gaming (Project Natal)

Project Natal is the code name for a 'controller-free gaming and entertainment experience' by Microsoft for the Xbox 360 video game platform. Based on an add-on peripheral for the Xbox 360 console, Project Natal enables users to control and interact with the Xbox 360 without the need to touch a game controller through a natural user interface using gestures, spoken commands or object recognition.

For more information see source: http://en.wikipedia.org/wiki/Project_Natal

3D display technology

A **3D display** is any display device capable of conveying three-dimensional images to the viewer. For more information see source: http://en.wikipedia.org/wiki/3D_display

Outcome 2

Candidates will clearly define the role and attributes of a games designer. This may include the following:

Role:

- translates the concept of game into a plan
- creates a game design document (blueprint)

Attributes:

- understands the game development process
- possesses a good knowledge of social, music and party games
- is a hard worker
- is dedicated to creating games
- has excellent communication skills, both verbal and written
- is able to think creatively
- is able to problem-solve
- has experience of designing games consoles and peripherals
- is enthusiastic, confident, and positive
- demonstrates knowledge of game design theory
- is a good leader/able to lead a team

National Unit Specification: support notes (cont)

UNIT Computer Games: Design (SCQF level 5)

Candidates will play and observe one digital game, analysing detail and creativity in at least three of the following observable design areas:

Design Area	Questions to help with the analysis of detail and creativity
Narrative Design	Has the game a coherent and well-thought out storyline? Does the player have interesting or difficult choices to make? What is the theme — is it a quest, a tale of vengeance, sport, etc? Are there sub plots in the game? Who would be the target audience for the game? What is the genre of the game (casual games, simulations, action, role-play, educational)?
Character Design	Is the character and appearance appropriate to plot? Do all characters/objects have a reason for being in game?
Level/Environment Design	Is the game set in a 3D world modelled on real places? Is there a range of features (trees, buildings, blocks, maze)? Is there a sense of atmosphere: environments are realistically gritty and include weather and are set at different times of the day with suitable lighting? Is each environment design suitable to the setting of the story? Are the size and dimensions sensible? Number of locations? Number of levels? Do the sound effects add to the game (audio and narration - frightening, peaceful, fun)? Do the visual effects add to the game (lighting, shadows, warps)?
Gameplay and Game Mechanics Design	What are rules of the game? What are the challenges/choices? Does the player receive appropriate rewards? Is there an element of chance? Is there a limited number of Outcomes? Is there progression from one activity to the next, from one level to the next? Is there an element of skill/dexterity required? Is this game for individual players or multiple players? Smoothness of gameplay
User Interface Design	Navigation bar Feedback quantity/quality Instructions Menus Buttons Ergonomics of hardware

National Unit Specification: support notes (cont)

UNIT Computer Games: Design (SCQF level 5)

Create a clear and accurate flowchart of gameplay from an existing digital game.

Candidates will play and observe one digital game, creating a clear and accurate flowchart of one logical sequence of gameplay from an existing game. The flowchart may depict the following:

- logical sequence of gameplay
- start/stop/terminator symbol
- arrows showing flow of control
- processing steps
- input and output
- decisions
- sub routines
- wait boxes

Outcome 3

Candidates will produce a clear, concise and feasible design brief for a computer game. The design brief should contain at least five of the following:

Design element	Items required
Game title/theme/genre	One accurate description.
Target audience	One accurate description.
Game platform	One accurate description of one named platform with details of hardware specifications, control and output devices.
Game purpose/objective/plot	One detailed description.
Basic gameplay	One description.
Main characters (If Any)	Two descriptions.
User interface requirements	Three screens (ie start screen, score screen, character selection screen).

Candidates will plan at least three observable design elements of one computer game. At least three of the following types of evidence would be acceptable:

- narrative design — storyboard, mind map, story, script
- character design — character/object description, character sketch
- level/environment design — written description, illustrations, environmental pictures
- gameplay and game mechanics design — list of rules, flow chart of one logical sequence of gameplay, spreadsheet of possible outcomes, game layout chart, top-down design, a document that specifies values of variables that affect game play or game mechanics ie object.attribute = value or playercar.speed = veryfast.
- user interface design — navigation, feedback, instructions, menus, buttons

Outcome 3

Produce a list of assets consistent with the plan for the digital game.

Candidates will provide a list of assets required for the game they are designing. This will vary and may include graphics, sound files, animation. 3D objects, video clips and text files.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

If this Unit is undertaken in the context of the NPA in Computer Games Development at SCQF level 5, the following sequence of delivery is recommended:

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

A variety of different types of information sources should be used for Outcome 1. Suitable sources include current magazines and a range of web sites available on the internet.

Candidates should be allowed to actively explore various gaming platforms.

Candidates could record the findings of their research on a pro forma with suitable headings to aid gathering of appropriate information.

This Unit could be delivered in the context of a larger game with each candidate designing a level of a computer game. In these circumstances it essential that each candidate identifies their own contribution to the design task and provides evidence for their own individual portfolio.

National Unit Specification: support notes (cont)

UNIT Computer Games: Design (SCQF level 5)

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

Outcome 1 10 hours
Outcome 2 10 hours
Outcome 3 20 hours

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates are required to investigate technologies and to create a design which can provide opportunities to gather evidence towards aspects of *Information and Communication Technology* and *Problem Solving* at SCQF level 5.

Candidates should produce a clear, concise and feasible design brief for a computer game and may also choose to plan a narrative design which could include writing a story, play or plot and provide opportunities to gather evidence towards aspects of *Communication* at SCQF level 5.

This Unit may be delivered in the context of a larger game with each candidate designing a level of a computer game. This would provide opportunities to gather evidence towards aspects of *Working with Others* at SCQF level 5.

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' examples of work being 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 5 then the evidence should be retained as part of a portfolio of work required for the Units *Computer Games: Media Assets* and *Computer Games: Development* (SCQF level 5).

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**