Higher National Unit specification

General information for centres

Unit title: 3D Animation: Special Effects

Unit code: F563 34

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills involved in the creation and application of special effects within a 3D computer animation package. This Unit would be suitable for candidates wishing to develop greater competence in the creation and production of 3D animations for various applications. Candidates must have completed or be undertaking the Unit *3D Computer Modelling and Animation*.

On completion of the Unit the candidate should be able to:

1 Create 3D scenes from a brief and enhance them using particle systems.
2 Create 3D scenes from a brief and enhance them using lighting effects.
3 Incorporate lighting effects and particle systems to a given brief into the 3D file supplied.

Credit points and level: 2 HN credits at SCQF level 7: (16 SCQF credit points at SCQF level 7*)

**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: Candidates must have either completed, or be currently undertaking HN Unit, D2ES 04 *Introduction to 3D Computer Modelling and Animation*, as this introduces the candidate to the basic techniques used to set up computer generated 3D scenes and the use of the interface of a 3D package.

Core Skills: There are opportunities to develop the Core Skills of *Information Technology* and *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.

Assessment: The assessment for this Unit will be product based in the form of:

- a completed scene incorporating particle systems as an assignment from supplied source material
- a completed scene incorporating lighting effects as an assignment from supplied source material
- project work incorporating lighting effects and particle system techniques from supplied source material
- electronic storage media containing back-up copies of the above

Higher National Unit specification: statement of standards

Unit title: 3D Animation: Special Effects

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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

Create 3D scenes from a brief and enhance them using particle systems

Knowledge and/or Skills

- Creation tools
- Modification tools
- Particle systems

Evidence Requirements

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

Produce three completed scenes which meet the requirements of a given brief which requires:

- creation of the required mood and atmosphere
- creation of the illusion of water, smoke and fog
- creation of particle system effects that cannot be created using standard geometry

The brief must require the candidates to develop three computer generated 3D animation sequences incorporating particle systems. Choice of the topic for the brief will be at the centre's discretion.

Evidence should be generated through assessment undertaken as open-book in a supervised environment. Candidates should be allowed to refer to relevant course material.

Assessment Guidelines

An observational checklist may be used to ensure that candidates have addressed all the Knowledge and/or Skills requirements.

Assessment of this Outcome is likely to be distinct from the assessment of Outcomes 2 and 3. However, knowledge gained through completion of this Outcome will contribute directly to Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: 3D Animation: Special Effects

Outcome 2

Create 3D scenes from a brief and enhance them using lighting effects

Knowledge and/or Skills

- Creation tools
- Modification tools
- Lighting Effects

Evidence Requirements

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

Produce three computer generated scenes which meet the requirements of a given brief which requires:

- creation of the required views and perspectives from source material
- creation of lighting effects that can be applied to lighting setups using different light types to enhance the 3D scenes

The brief must require the candidates to develop three computer generated 3D animation sequences incorporating lighting effects. Choice of the topic for the brief will be at the centres discretion.

Evidence should be generated through assessment undertaken as open-book in a supervised environment. Candidates should be allowed to refer to relevant course material.

Assessment Guidelines

An observational checklist may be used to ensure that candidates have addressed all the Knowledge and/or Skills requirements.

Assessment of this Outcome is likely to be distinct from the assessment of Outcomes 1 and 3. However, knowledge gained through completion of this Outcome will contribute directly to Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: 3D Animation: Special Effects

Outcome 3

Incorporate lighting effects and particle systems to a given brief into the 3D file supplied

Knowledge and/or Skills

- Creation tools
- Animation
- Data Storage formats and devices
- Particle Effects
- Lighting Effects

Evidence Requirements

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

- create and apply appropriate virtual lighting incorporating special lighting effects to a supplied virtual model or environment
- create and apply appropriate special effects using particle systems with the use of space warps to a supplied virtual model or environment
- create at least four full colour digital renders through camera views saved as an appropriate file format and located in a dedicated storage device
- create an animation of at least ten seconds in length from the supplied material that meets the criteria of the supplied brief; saved as an appropriate file format using an appropriate rendering device and located in a dedicated storage device

Evidence must be presented as a digitally generated 3D scene modifying an existing computer generated 3D template. Choice of the topic for the brief will be at the centres discretion.

Assessment Guidelines

Evidence will be presented as a completed digitally generated scene. Candidates will be required to apply lighting and particle effects to meet the requirements of the brief.

An observational checklist may be used to ensure that candidates have addressed all the Knowledge and/or Skills requirements.

Assessment of this Outcome is likely to be distinct from the assessment of Outcomes 1 and 2.

Administrative Information

Unit code: F563 34

Unit title: 3D Animation: Special Effect

Superclass category: JB

Original date of publication: August 2008

Version: 01

History of changes:

Version	Description of change	Date

Source: SQA

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

Higher National Unit specification: support notes

Unit title: 3D Animation: Special Effects

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 designed to develop the knowledge and skills of the candidate in the use of lighting effects and particle systems within a 3D modelling and visualisation environment. Candidates should have completed or be undertaking the Unit 3D *Computer Modelling and Animation*. The Unit should encourage candidates to work towards realistic workplace practices and standards, using industry standard hardware and software. The content of the Unit has been kept non-software specific, in order that centres may customise delivery to their own needs. Three Outcomes cover both process and project, allowing the candidate to both learn specific software skills and techniques, applying these within the context of a subject orientated project brief.

Guidance on the delivery and assessment of this Unit

If candidates undertake this Unit as part of the HND 3D Animation it is expected that this Unit will be delivered integrated closely with other Units in the Group Award. This Unit could be delivered on a weekly or bi-weekly basis at the discretion of the centre.

In Outcomes 1 and 2 candidates could be given a demonstration in the use of the particle systems and effects applicable to lighting of the 3D software interface, and be allocated time to familiarise themselves with its uses. It is unlikely that candidates would use all of the functions and commands available to them at this stage. However, candidates could be encouraged to experiment with the use of the particle systems (such as Size, Shape, Life, Type, Spawn, Collision, Presets, Gravity) lighting Interface command tools (such as Lighting types, Presets, Sun Systems, Atmospherics). Candidates could be encouraged to create non-complex scenarios at the beginning of the course, and, as knowledge and skills develop, produce more complex scenarios).

In Outcome 3 the Knowledge and/ or Skills could be assessed by the creation of appropriate scenes and animations saved to an appropriate format and to an appropriate storage device. Outcome 3 is seen as an application of the Knowledge and Skills gained in Outcomes 1 and 2 to produce suitable stills and an animation of at least ten seconds in length that shows a clear understanding of the use of lighting effects and the application of particle systems and space warps to enhance a 3D computer generated scene.

A delivery pattern for the Unit might be:

- introduction to the Unit
- overview of particle system interface
- particle systems — demonstration and practice of basic skills
- Outcome 1 — special effects
- overview of 3D Software Lighting Effects
- lighting — demonstration and practice of effects
- Outcome 2 — lighting effects
- incorporating lighting effects and particle systems within a scene

Higher National Unit specification: support notes

Unit title: 3D Animation: Special Effects

- animating lights and particle systems
- use of Space Warps
- Outcome 3 — produce animation at least ten seconds in length

Opportunities for developing Core Skills

All elements of the Core Skill of *Problem Solving* and *Information Technology* should be naturally developed and enhanced as the Unit is completed.

Problem Solving is used in interpreting the briefs and manipulating and modifying the animated solutions. IT skills are used when using different file types and transferring and saving files.

Open learning

It is not recommended that this Unit be delivered by Open learning due to its practical nature. It would require a considerable degree of planning by the centre to ensure the sufficiency and authenticity of candidate evidence.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.

General information for candidates

Unit title: 3D Animation: Special Effects

This Unit is designed to enable the candidate to create and apply special effects in a 3D software environment.

In Outcome 1 you will learn how to use various particle systems to enhance a 3D computer generated visualisation. You will learn how to create and modify particle systems using a variety of software exercises and tutorials.

In order to achieve Outcome 1 you need to:

(a) Produce at least three suitably enhanced scenes using material supplied demonstrating the use of special effects.
(b) Clearly show the use of a variety of particle systems within these scenes.
(c) Present your completed scenes, saving your electronic data to a relevant file format.

In Outcome 2 you will learn about enhancing 3D virtual lighting setups to show the use of lighting effects in the presentation of a 3D scene. These lighting effects will be used to convey a sense of mood and atmosphere

In order to achieve Outcome 2 you need to:

(a) Create at least three finished scenes showing suitable use of lighting effects from supplied materials.
(b) Apply appropriate virtual lighting effects to demonstrate means in which a 3D environment can be enhanced through the use of lighting effects.
(c) Present your completed scenes, saving your electronic data to a relevant file format.

In Outcome 3 you will learn how to apply your knowledge to a practical design brief or assignment using a 3D computer model or environment which will be supplied.

You will learn how to assemble 3D virtual lighting and particle systems as specified by the brief you are working with, to modify lights and particle systems to create suitable scenarios for a range of specifications, and how to create the final rendered output in an appropriate format.

In order to achieve Outcome3 you need to:

(a) Produce an appropriately lit and visualised ten second animation saved as an appropriate file format and stored to a suitable location.
(b) Produce the animation using the appropriate rendering device.

Typical scenarios may be:

(a) Smoke from a fire/cigarette within a particular atmosphere showing the effects of wind.
(b) Water features such as fountains/water jets/rain demonstrating the effects of wind/gravity on the water and how the water deflects off other objects and splashes off other water features.
(c) Grouping effects such as fish shoals/bees swarming/flights of arrows where particle systems are used to create these effects.