Higher National Unit Specification

General information for centres

Unit title: 3D Computer Animation

Unit code: DV94 35

Unit purpose: This Unit is designed to enable candidates to acquire a better understanding of the main developments and techniques in three-dimensional computer animation. It is primarily intended as an introduction to the basic techniques involved in the creation and implementation of a three-dimensional computer animation.

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

1 Understand the basic principles of current 3D computer animation.
2 Produce a three-dimensional computer model to a given brief/s.
3 Create a three-dimensional computer animation sequence to a given brief/s.

Credit points and level: 2 HN Credit 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 is at the discretion of the centre. It would be beneficial if candidates had competence in computer hardware and software for design applications.

Core Skills: There are opportunities to develop the Core Skills of Information Technology, Problem Solving and Communication 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 Outcome 1 will require candidates to produce either an annotated visual collection, oral presentation or written response based on the knowledge and/or skills developed over the duration of the Unit.

The assessment of Outcome 2 may be combined with Outcome 3. Both Outcomes will be assessed in relation to a given brief/s, in the form of practical project work, saved to a suitable format.

General information for centres (cont)

Assessment for Outcome 2 will require candidates to implement basic modelling techniques. Candidates will submit either a rendered frame of a three-dimensional object output in colour, using an appropriate output device or saved to a digital storage device.

Outcome 3 requires candidates to produce a storyboard outlining concepts for the finished animation sequence. Candidates will then produce an animation sequence. The final animation will have a minimum duration of 20 seconds using a suitable rendering algorithm. The finished animation will be submitted on a suitable digital storage device.

All assessments should be conducted in conditions where arrangements have been put in place to assure the authenticity of the candidate's work.

A checklist may be used to evaluate the candidate's achievement and the completion of all the requirements for the knowledge and/or skills stated.

Higher National Unit specification: statement of standards

Unit title: 3D Computer Animation

Unit code: DV94 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

Understand the basic principles of current 3D computer animation

Knowledge and/or skills

- basic principles
- current 3D computer animation
- systems
- techniques
- methodologies
- terminologies

Evidence Requirements

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

- demonstrate a clear understanding of the basic principles of 3D computer animation
- provide current examples of 3D computer animation
- provide evidence of research into all items stated within the knowledge and/or skills
- identify systems, techniques and methodologies appropriate to 3D Computer Animation
- use appropriate three-dimensional terminology within their response

Candidates should produce an annotated visual collection of 3D Computer Animations or undertake an oral presentation or answer questions under controlled conditions, based on the knowledge and/or skills developed over the duration of the Unit.

Assessment guidelines

It is recommended that an annotated visual collection should last a minimum of 15 seconds, that an oral response should be a minimum of 10 minutes and that a written response should be a minimum of 750 words. The assessment for Outcome 1 will be a single assessment. If candidates are asked to answer questions these should be set by the Tutor delivering the Unit. It is recommended that a checklist is used to record the candidates response.

Higher National Unit specification: statement of standards (cont)

Unit title: 3D Computer Animation

Outcome 2

Produce a three-dimensional computer model to a given brief/s

Knowledge and/or skills

- select objects
- modelling techniques
- lighting
- rendering

Evidence Requirements

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

- select a suitable object in relation to a given brief/s
- use the correct modelling techniques that are appropriate to the given brief/s
- create and apply suitable textures to a three-dimensional model
- create lighting to illuminate a three-dimensional model
- render accurately using a suitable rendering algorithm

Candidates will need to produce evidence to show they can construct a virtual, three-dimensional object which incorporates modelling techniques, textures and lighting. The evidence should be in the form of a single, screen-based, still image which incorporates a three-dimensional model.

Assessment guidelines

Assessment for Outcome 2 will require the candidate to implement basic modelling techniques such as extrusion and lathing. The candidate should submit either a rendered frame of a three-dimensional object output in colour using an appropriate output device or saved to a digital storage device in a suitable image format.

The candidate's work should be in response to the requirements of a given brief/s. A checklist may be used to evaluate the candidate's achievement and the completion of all the requirements for the knowledge and/or skills stated.

Higher National Unit specification: statement of standards (cont)

Unit title: 3D Computer Animation

Outcome 3

Create a three-dimensional computer animation sequence to a given brief/s

Knowledge and/or skills

- storyboard
- animation paths
- camera paths
- rendering an animation sequence

Evidence Requirements

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

- produce a storyboard that accurately reflects the final animation sequence in relation to time and direction
- create animation paths and camera paths incorporating the correct techniques
- control lighting effectively
- render an animation sequence using a suitable rendering algorithm
- produce an animation sequence of a minimum duration of 20 seconds
- submit the final animation sequence in a suitable animation format appropriate to the requirements of the given brief/s, saved to an appropriate digital storage device

Outcome 3 requires the candidate to produce a storyboard outlining concepts for the finished animation sequence. The final animation will have a minimum duration of 20 seconds, which should incorporate animation and camera paths using a suitable rendering algorithm. The finished animation will be submitted on a suitable digital storage device.

Assessment guidelines

The assessment of this Outcome can be combined with Outcome 2.

The candidate's work should be in response to the requirements of a given brief/s. A checklist may be used to evaluate the candidate's achievement and the completion of all the requirements for the knowledge and/or skills stated.

Administrative Information

Unit code: DV94 35

Unit title: 3D Computer Animation

Superclass category: CE

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History of changes:

Version	Description of change	Date
2	Page 1, Outcome 1, added the word "current". Page 3, Outcome 1, Evidence Requirements, second half of final paragraph moved to Assessment Guidelines. Page 5, Outcome 3, Assessment Guidelines, paragraph 1 moved to Evidence Requirements.	Jan 08

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 Computer Animation

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 the basic skills needed to produce a three-dimensional object and animation sequence. The Unit should be candidate-centered and Tutors should use discussion and analysis of example material. This should be integrated by structured tuition in techniques specific to a three-dimensional software packages, with learning being reinforced by project work where candidates work to a specific brief/s.

Guidance on the delivery and assessment of this Unit

This Unit is designed to provide candidates with a technical and professional knowledge and skills related to 3D Computer Animation.

Outcome 1 should be assessed as a single assessment while Outcomes 2 and 3 may be delivered and assessed in a holistic manner.

Outcomes 2 and 3 should be delivered in conjunction with project brief/s devised by the Tutor delivering the Unit.

All assessments should be conducted in conditions where arrangements have been put in place to ensure the authenticity of the candidate's work.

Opportunities for developing Core Skills

Candidates will develop skills in the use of Information Technology as they manage the practical aspects of creating a three dimensional animation sequence to a given brief. Instruction in use of current software will support candidates as they become familiar with effective design strategies and develop practical skills. The facility to access and evaluate sources which provide a range of current examples of computer animation would enhance critical and analytical approaches to design. Candidates will be expected to make effective and responsible use of equipment and software applications and to understand the importance of saving and performing back ups for notes and drafts of design work.

Candidates will be required as they undertake the Unit to analyse the techniques used in computer animation in some depth and to consider design concepts in a range of theoretical and practical situations before creating an animation sequence. Checklists to support analytical evaluation of all stages of animation work could be provided and might include such criteria as effectiveness in meeting agreed remit, creative purpose and needs of the proposed audience. In planning to meet the practical requirements of a brief such variables as available resources and appropriate media will need to be identified and the significance of each analysed before design approaches are selected. Developing and implementing initial design concepts should further provide opportunities for enhancing problem solving skills to an advanced level. Evaluation which examines all stages of proposed design solutions and their potential and actual impact will be on-going.

Higher National Unit specification: support notes

Unit title: 3D Computer Animation

The presentation should develop oral communication skills to an acceptable professional standard. Candidates should present materials effectively, using a style, format and structure suited to their anticipated audience. They should be familiar with effective non-verbal techniques to progress communication and be able to respond to any questions confidently.

Open learning

This Unit would be suited to open, distance and online learning if it was conducted in conditions where arrangements have been put in place to assure the authenticity of the candidate's work.

Candidates with additional support needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. 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. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs,* which is available on SQA's website: **www.sqa.org.uk**.

General information for candidates

Unit title: 3D Computer Animation

This Unit is designed to equip you with the knowledge and skills to animate a 3D computer model and a three-dimensional computer animations sequence.

You will be expected to produce a three-dimensional object in relation to a given brief/s, which incorporates basic construction, lighting and texture.

You will be expected to plan your animation sequence in the form of a storyboard. You will then create a three-dimensional animation in relation to a given brief/s, with a minimum duration of 20 seconds that accurately reflects the storyboard.

You will supply all assessable work in an appropriate format.

On completion of the Unit you will be able to:

1 Understand the basic principles of current 3D computer animation.
2 Produce a three-dimensional computer model.
3 Create a three-dimensional computer animation sequence.