

Higher National Unit Specification

General information for centres

Unit title: 3D Computer Animation for Visual Communication: Advanced

Unit code: DX3E 36

Unit purpose: This Unit is designed to enable candidates to further develop techniques in 3D computer animation. The Unit is designed to extend candidates' capabilities in utilising 3D modelling software to create a 3D animation sequence from source materials.

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

- 1 Create a 3D computer animated model from source material.
- 2 Create a 3D virtual environment.
- 3 Identify current animation standards.
- 4 Produce a 3D animation sequence to a given brief/s.

Credit points and level: 2 HN Credits at SCQF level 9: (16 SCQF credit points at SCQF level 9*).

**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 an experience of working within a computer based environment, experience of creating 3D computers animations from concept from concept stage to a finished prototype and have prior knowledge of file management techniques. This may be evidenced by the possession of relevant Higher National Units such as DV94 35 3D Computer Animation or by prior experience.

Core Skills: There are opportunities to develop the Core Skills of Information 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: Holistic assessment should be encouraged in relation to Outcome 1, 2 and 4

A checklist may be used to evaluate the candidate's completion of each part of the requirements for knowledge and/or skills, stated above.

Higher National Unit specification: statement of standards

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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 a 3D computer animated model from source material

Knowledge and/or skills

- ◆ Developmental drawings
- ◆ Creation tools
- ◆ 3D geometries
- ◆ Animate 3D geometries
- ◆ Export animated model

Evidence Requirements

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

- ◆ create rendered preliminary 2D sketches, developmental drawings or photographs as a basis for future 3D modelling project (minimum of six)
- ◆ produce a wire-frame 3D model utilizing creation and modification tools within 3D geometries
- ◆ animate a textured 3D model utilizing textures maps
- ◆ export complete animated model into a suitable virtual environment
- ◆ save to suitable electronic file format, and produce hard copy evidence of the above in a project work/sketchbook

Assessment guidelines

Candidates should be given demonstrations in the use of the 3D software, and be allocated time to familiarise themselves to its uses. Demonstrations should encourage candidates to develop and experiment with the interface tools and should be encouraged to create a complex animated model within time plan allocated.

It would be useful, at this stage, if reference were made to Outcome 2 and Outcome 4, in order that candidates are aware of how selected model/s may be applicable to a project brief. This will assist in holistic assessment, (if applicable), across Outcomes 1, 2 and 4

Higher National Unit specification: statement of standards (cont)

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Outcome 2

Produce a 3D virtual environment

Knowledge and/or skills

- ◆ Creating a virtual environment
- ◆ Applying surface colour
- ◆ Applying surface texture
- ◆ Creating virtual lighting
- ◆ Creating and apply virtual camera/s
- ◆ Interaction

Evidence Requirements

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

- ◆ produce an appropriate virtual environment
- ◆ apply surface colour
- ◆ apply suitable surface texture maps
- ◆ apply appropriate virtual lighting
- ◆ create animated camera paths
- ◆ render several animation sequences through the camera view (minimum of 32 seconds)
- ◆ clearly define movement and interaction between 3D objects
- ◆ save all rendered sequences to appropriate file format and store

Assessment guidelines

The above knowledge and/ or skills may be assessed as individual criteria, or holistically in an integrated manner. The finished animation/s will be saved in a relevant file format ready for incorporation within suitable editing software.

Outcome 3

Identify current animation standards

Knowledge and/or skills

- ◆ Processing
- ◆ Frame rates
- ◆ Media
- ◆ Display platforms
- ◆ Effects

Higher National Unit specification: statement of standards (cont)

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Evidence Requirements

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

- ◆ Compile evidence of research into all items stated above. This will be evidenced either in a report (1,000 words (minimum) or equivalent), or by responding to a questionnaire, which will be provided by the tutor.

Assessment guidelines

The assessment of Outcome 3 could be a single assessment, or it would be possible, if desired, to break this assessment down into separate assessment parts, undertaken in supervised conditions.

Candidates should be given all the necessary information to enable them to source relevant research in order to produce a report or respond to a questionnaire.

Outcome 4

Produce a 3D animation sequence to a given brief/s

Knowledge and/or skills

- ◆ Developmental concepts
- ◆ Animation sequence
- ◆ Time management
- ◆ Editing
- ◆ Audio
- ◆ File format

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
- ◆ plan the animation correctly by indicating paths and cameras movement
- ◆ clearly define a time plan that provides realistic time management for the completed 3D animation sequence
- ◆ incorporate editing effects such as transitions and transformations into an animation sequence
- ◆ incorporate audio effects into animation sequence
- ◆ save final animation to an appropriate file format

The animation sequence should last 35 seconds minimum.

Higher National Unit specification: statement of standards (cont)

Unit title: 3D Computer Animation for Visual Communication: Advanced

Assessment guidelines

The candidate's work should be in response to the requirements of a given brief/s. Candidates should create and develop a storyboard for animation sequence prior to working within a 3D computer program. The assessment of this outcome can be combined with Outcome 1 and 2 as part of a single outcome for this unit.

The candidate should display an understanding of design creativity and animation editing techniques, by utilising appropriate editing software.

The candidate should accurately test and then save the final animation to the correct file format. It is also recommended that the candidates adhere to self-imposed deadlines throughout the duration of the brief. This would demonstrate project management skills.

Administrative Information

Unit code: DX3E 36

Unit title: 3D Computer Animation for Visual Communication: Advanced

Superclass category: CE

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History of Changes:

Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: 3D Computer Animation for Visual Communication: Advanced

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

The Unit is designed to provide candidates with a clear progression route from Computer Animation units. The intention is to develop the knowledge and skills of the candidate within the context of 3D modelling and animation units. The unit should challenge the candidate to both create and develop in-depth knowledge of 3D animation formats and styles.

Computer animation is one of the most rapidly growing areas of creative and technical development. Computer-generated 3D sequences in television and movies, computer-animated simulator rides, computer video games, special effects, and virtual environments are some of the more visible applications of 3D computer animation.

The content of the unit has intentionally been kept non-subject specific so as to allow customisation and flexibility to centres delivering the unit. The four Outcomes cover production and project management, allowing the candidate to apply both technical and creative solutions to a project brief.

Guidance on the delivery and assessment of this Unit

This Unit is designed to build upon the knowledge/ skills learned within Computer Animation units. The Unit will concentrate on the creative and technical capabilities of an animated sequence.

Outcome 1 and 2, tutors should provide candidates with current exemplars of 3D models and a relevant explanation as to the animation possibilities within the examples presented and those selected by the candidate. Candidates should be given demonstrations that expand their existing knowledge of 3D Computer Animation.

Both Outcome 1 and Outcome 2 should be assessed in a holistic manner with candidates submitting a single rendered animation sequence that incorporate all the required knowledge and/or skills for both outcomes. The submitted animation may be supplied in an appropriate file format.

Outcome 3 should be assessed as a single assessment with candidates being provided with information and explanation on technical issues that effect the production of a 3D animation sequence. Particular attention should be paid to the various file formats and rendering effects in relation to the intended target audience.

Candidates should be provided with written questions or statements relating to the evaluation and production of a 3D animation sequence. Candidates should be asked to supply research support notes collated within a binder/folder for assessment.

Outcome 4 should encourage candidates to be creative as possible, with particular attention being paid to the construction, execution and time management of the entire unit.

Higher National Unit specification: support notes (cont)

Unit title: 3D Computer Animation for Visual Communication: Advanced

Candidates should supply the class tutor with a storyboard that reflects the final animated sequence. The sequence itself must include editing effects, audio and be correct in terms of format and audience delivery. The final animation will be presented saved to appropriate file type.

In order to complete the animation the candidate will edit the rendered sequences in suitable editing software with audio applied as appropriate. This will involve tutor demonstration and support notes that reinforce the unit requirements.

Opportunities for developing Core Skills

Skills in accessing and evaluating electronic sources which provide an effective source of current complex information on the basic principles and mechanical concepts of paper and cell animation as well as professional concerns, issues and ideas will be developed, in order that candidates are able to read in depth and in detail current reference materials from a range of Internet sites. Checklists to support analytical evaluation of information accessed could include criteria to ensure a check on the currency, authority, accuracy, and balance of all information to be used.

Candidates will be required as they produce solutions to a given brief to analyse and seek solutions to a range of theoretical and practical problems and issues as they identify and work towards specific objectives. Identifying and considering the variables, including all available resources, and analysing the relative significance of each before identifying and justifying an appropriate strategic approach will provide opportunities to develop elements of planning, critical thinking and general problem solving skills to an advanced level. Analysing and evaluating the potential impact of proposed strategies will be a critical aspect of underpinning knowledge and understanding, and candidates should identify appropriate methods to measure achievement.

Demonstration by the assessor of the correct use of 3D animation techniques and construction principles will assist the development of technical skills. Focus on the presentation of materials appropriate to identified purpose and audience should assure the impact and effectiveness of 3D animation sequences and enhance communication skills.

Open learning

This Unit is not appropriate for Open Learning purposes as specialist equipment is required to generate the evidence necessary for the Outcomes. For further information and advice please refer to the SQA document *Assessment and Quality Assurance for Open and Distance Learning* which is available on SQA's website: www.sqa.org.uk.

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. 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 for Visual Communication: Advanced

This Unit will develop the knowledge and skills you require to design and produce a 3D Computer Animation sequence to an advanced level.

Outcome 1

You will apply animation techniques that will animate all the required elements within your 3D model.

On completion of your animated model you will export it into a suitable virtual environment.

Outcome 2

In this Outcome you will create a 3D virtual environment that is suitable to your chosen model in Outcome 1. You will be expected to create from source material all elements within this environment incorporating the animated model from outcome 1. You will apply camera motion and light animation which follows your pre-designed storyboard design and render your sequences in a format that has been pre-determined in accordance with the knowledge you have gained in Outcome 1.

Outcome 3

In this Outcome you will be required to research and evaluate the latest technical developments within the production of a 3D animation sequence. You will research the technical aspects in the production and planning of a rendered animation sequence taking into account the various display platforms, aspect ratios, computer power, frame rate, streaming possibilities, resolution and time implications.

Outcome 4

In this Outcome you will develop concepts to a given brief. These concepts will be visualised through the production of a storyboard. All the design elements and direction of cameras, lighting and actor motion will be clearly stated and have conceptual understanding within your storyboard.

You will then edit your rendered clips into one coherent animation sequence that incorporates audio.

Finally you will present your 3D animation in a file format appropriate to your chosen platform.