

Appendix 7

New Unit Specifications

Unit Code	Unit Title	Page
DE35 35	2D Digital Imaging and Animation	2
DE2N 35	3D Modelling and Animation	10
DE2P 35	Advanced Bitmap Graphics for Creative Multimedia Design	18
DE2R 35	Advanced Vector Graphics for Creative Multimedia Design	27
DE2T 34	Audio Visual Techniques for Multimedia Applications	38
DE2V 35	Developing Data Driven Applications	47
DE2W 34	Graphics for Creative Multimedia Design	58
DE2X 35	Interactive Fiction	70
DE2Y 34	Multimedia Fundamentals	80
DE30 35	Narrative and Genre in Computer Games	98
DE31 34	Researching Multimedia Applications for Practical Re-delivery	108
DE32 35	Scripting for Interactivity	120
DE34 34	User Interface Development	130
DE33 35	User Interface: Testing and Evaluation	139
DE36 34	HNC Interactive Multimedia Creation: Group Award Graded Unit 1 (Examination)	150
DE37 35	HND Interactive Multimedia Creation: Group Award Graded Unit 2 (Project)	155

Higher National Unit Specification

General information for centres

Unit title: 2D Digital Imaging and Animation

Unit code: DE35 35

Unit purpose: This Unit is designed to enable candidates to plan for and create artwork for animation in a 2D software environment.

On completion of this Unit candidates should be able to:

1. Plan a 2D Digital Animation Sequence
2. Create 2D Digital Artwork for an Animation
3. Create a 2D Digital Animation

Credit value: 2 HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it would be beneficial if candidates were proficient in computer use and saving files in a methodical way. This may be evidenced by the possession of relevant National Units, HN Units or experience. Higher Art and Design and/or Craft Design and Technology would provide useful background knowledge but are not essential to success in this Unit. It is recommended that candidates have completed HN Unit DE2W 34 Graphics for Creative Multimedia Design, or similar, prior to commencement of this Unit.

Core skills: There may be opportunities to gather evidence towards core skills 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. The most appropriate approach to delivery is one that requires the candidate to create an animation that can be integrated with a “showreel” or a multimedia “showcase” of their overall achievement. The lecturer should act as a client for the finished project and the candidate should respond accordingly.

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

- A project file containing planning paperwork
- A storage medium containing computer created artwork, and final 2D animation[s].

Higher National Unit specification: statement of standards

Unit title: 2D Digital Imaging and Animation

Unit code:

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

Plan a 2D Digital Animation Sequence.

Knowledge and/or skills

- How to write a treatment outlining a 2D animation proposal
- How to use drawing and/or imaging skills to create a storyboard to client presentation standards
- How to write a project plan which establishes a production time scale.

Evidence requirements

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

- Produce an A4 typed Treatment detailing: Title; Duration; Target Audience; Aims; Structure; Equipment and Budget
- Storyboard a 30 second animation with key frames shown in a sequence of at least 8 images
- Produce an A4 written plan of the work to be done on a week by week basis.

Assessment guidelines

Candidates should understand the need to produce clear paperwork so that clients in the real world can see what they are contracting to pay for and that both parties can form an agreement about what should be produced. If possible, exemplar materials of treatments and storyboards should be provided. Candidates should also realise their paperwork should reflect the budget of the project. The emphasis is on clarity, not on artistic quality - the paperwork is a communication aid. Similarly with the reference drawings, candidates should replicate real world practices of ensuring that the agreed drawings are then implemented. The project plan should be used as a tool by both candidates and centres to keep them on target to produce the different stages the treatment outlines. The paperwork should be kept in a folder and be referred to throughout the project.

Higher National Unit specification: statement of standards

Unit title: 2D Digital Imaging and Animation

Outcome 2

Create 2D Digital Artwork for an Animation

Knowledge and/or skills

- Sourcing and capturing 2D images from a video camera and / or a scanning device
- Creating 2D images using suitable software.

Evidence requirements

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

- Source and capture at least four 2D images with appropriate clarity and framing
- Create at least two pieces of digital art
- Save files of source images from which the proposed animation can be created.

Assessment guidelines

Candidates need to be shown how to use a video camera, and /or a scanning device to source images and then be given time to familiarise themselves with their use. The captured images should be methodically saved in a series of source files and these should closely relate to the planning paperwork. Using appropriate software, candidates should create at least two pieces of digital art which could be in an integrated software package or in several packages. Given the complexity of 2D packages and the constraints of a 2 credit Unit candidates are unlikely to exhaust the limits of the software.

Higher National Unit specification: statement of standards

Unit title: 2D Digital Imaging and Animation

Outcome 3

Create a 2D Digital Animation.

Knowledge and/or skills

- Modify and combine images using appropriate software
- Create an animated sequence
- Produce final output in an appropriate format

Evidence requirements

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

- Produce a 30 second animation
- Save the animation in an appropriate format

Assessment guidelines

Candidates need to be shown how to animate using supplied 2D software and then be given time to familiarise themselves with its use. Candidates would not be expected to use all of the features available within the software. However, candidates should gain an understanding of the key elements of moving images to recreate the storyboard drawings they have planned. The animation should have a sense of pace and timing and fulfil the 30 second brief. The final renders screen size will be determined by its final use. For example, it might be included in an interactive multimedia application or be a suitable size for television work and this will also determine the storage medium for the final output.

Administrative Information

Unit code: DE35 35

Unit title: 2D Digital Imaging and Animation

Superclass category: JB

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: 2D Digital Imaging and 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 designed to enable candidates to plan, create artwork and then animate in a 2D software environment. Useful background information can be found in a variety of animation text books which are widely available. Likewise as well as using software manuals lecturers offering this Unit may find additional books useful. There may be helpful tutorials from the World Wide Web, although these should be carefully worked through prior to recommending to candidates to ensure that vital elements have not been omitted. Candidates may find it difficult to gauge the complexity of their proposals, and should rely on the lecturer's final judgement [in the capacity of "the client"] in deciding what to include in their finished production, so that this is achievable within the time allowed.

Guidance on the delivery and assessment of this Unit

Due to the specialised nature of 2D Digital Imaging and Animation it is expected that this Unit will be delivered as a stand alone Unit, as opposed to being integrated closely with other Units in any one course programme. Programmes within which it may fit could include Interactive Multimedia, Animation and 3D Computer Animation. This Unit could be delivered on a weekly or bi-weekly basis at the discretion of the centre. A typical delivery pattern for the Unit might be:

- Introduction to the Unit [1]
- Overview of the capabilities of 2D software - Capture, Modification and Animation [1]
- Paperwork and planning exemplars [1]
- Working towards Outcome One - Treatment, Storyboards and Production Plan [2]
- 2D capture & modification - demonstration and practice of operations [2]
- Student 2D capture & modification with video and or scanning devices for project[3]
- Create 2D images using suitable software - demonstration and practice of operations[2]
- Student 2D image creation suitable for animation[4]
- Animation - demonstration and practice of key skills [2]
- Animation of final piece [4]
- Saving and submission of final material [1]
- Remediation [1]

NB: The numbers in brackets denote a notional number of 3 hour sessions for each activity.

According to this proposed delivery schedule the assessments for each of the Outcomes should have the following pattern:

Outcome 1: Week 5
Outcome 2: Week 16
Outcome 3: Week 23

Higher National Unit specification: support notes

Unit title: 2D Digital Imaging and Animation

Open learning

This Unit could be delivered as open learning providing suitable online learning and assessment materials were developed. These could include: Video examples of lecturer demonstrations, online tutorials, sending of models and animation in production for evaluation and feedback. The challenge would be to find ways round snags in the use of software, which in a classroom situation can be quickly overcome by a brief explanation or extra class demonstration. If Open Learning candidates have to wait for answers this could hinder their workflow and cause slippage in Unit delivery schedules. The computer power of a candidate's host machine and software licensing is also an issue that would need to be addressed by the centre offering this award. Whilst scanning devices are relatively cheap, video cameras would be expensive for individuals to supply. If centres supply video cameras then this would make the Unit very expensive to deliver. To avoid plagiarism issues, candidates undertaking this Unit via Open Learning would be required to submit "screenshots" of work in progress to ensure the authenticity of their assessment evidence.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see Assessment and Quality Assurance for Open and Distance Learning (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document Guidance on Special Assessment Arrangements (SQA, 2001).

General information for candidates

Unit title: 2D Digital Imaging and Animation

This Unit is designed to enable you to plan, source and modify images and then animate these images in one or more 2D software packages.

In Outcome 1 you should learn about planning a 2D digital animation sequence. You should learn how to write a treatment to outline a 2D animation proposal, how to use drawing and imaging skills to create a storyboard to client presentation standards and how to write a project plan which establishes a production time scale for your 2D animation. In order to achieve a pass in Outcome 1 you need to: produce a treatment detailing such features as: Title; Duration; Target Audience; Aims; Structure; Equipment and Budget; storyboard a 30 second animation with key frames; and produce a written plan of the work to be done on a week by week basis.

In Outcome 2 you should learn about creating 2D digital artwork for an animation. You should learn how to source and capture 2D images from a video camera and scanning device, and how to create 2D images using suitable software. In order to achieve a pass in Outcome 2 you need to: source and capture 2D images with clarity and framing, create two pieces of digital art and save the files of source images from which the proposed animation can be created.

In Outcome 3 you should learn about how to create a 2D digital animation. You should learn how to modify and combine images using appropriate software, create an animated sequence and produce final output in an appropriate format. In order to achieve a pass in Outcome 3 you need to produce a 30 second animation and save the animation in an appropriate format.

On completion of this Unit you should be able to:

- Plan a 2D Digital Animation Sequence
- Create 2D Digital Artwork For An Animation
- Create a 2D Digital Animation

Higher National Unit Specification

General information for centres

Unit title: 3D Modelling and Animation

Unit code: DE2N 35

Unit purpose: This Unit is designed to enable candidates to plan for and create models for animation in a 3D software environment.

On completion of this Unit candidates should be able to:

4. Plan a 3D Computer generated animation sequence
5. Create 3D Computer Models for an Animation
6. Create a 3D Animation

Credit value: 2 HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it would be beneficial if candidates were proficient in computer use and saving files in a methodical way. This may be evidenced by the possession of relevant National Units, HN Units or experience. Higher Art and Design and/or Craft Design and Technology would provide useful background knowledge but are not essential to success in this Unit. It is recommended that candidates have completed HN Unit DE2W 34 Graphics for Creative Multimedia Design, or similar, prior to commencement of this Unit. It is also recommended that candidates have either completed or are currently undertaking HN Unit, 2D Digital Imaging and Animation.

Core skills: There may be opportunities to gather evidence towards core skills 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. The most appropriate approach to delivery is one that requires the candidate to create an animation that can be integrated with a “showreel” or a multimedia “showcase” of their overall achievement. The lecturer should act as a client for the finished project and the candidate should respond accordingly.

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

- A project file containing planning paperwork
- A storage medium containing computer created models, and final animation[s].

Higher National Unit specification: statement of standards

Unit title: 3D Modelling and Animation

Unit code: DE2N 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

Plan a 3D Computer generated animation sequence

Knowledge and/or skills

- How to write a treatment outlining a 3D animation proposal
- How to use drawing and/or imaging skills to create a storyboard to a client presentation standard from a given brief
- How to use drawing and/or imaging skills to create simple reference drawings for the main elements of the animation
- How to write a project plan which establishes a production time scale.

Evidence requirements

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

- Produce an A4 treatment detailing: Title; Duration; Target Audience; Aims; Structure; Equipment and Budget
- Storyboard a 30 second 3D animation with key frames shown in a sequence of at least 8 images
- Create at least three A4 reference drawings for the key scene elements/models to be generated
- Produce an A4 written plan of the work to be done on a week by week basis

Assessment guidelines

Candidates should understand the need to produce clear paperwork so that clients in the real world can see what they are contracting to pay for and that both parties can form an agreement about what should be produced. If possible, exemplar materials of treatments and storyboards should be provided. Candidates should also realise their paperwork should reflect the budget of the project. The emphasis is on clarity, not on artistic quality - the paperwork is a communication aid. Similarly with the reference drawings, candidates should replicate real world practices of ensuring that the agreed drawings are then implemented. The project plan should be used as a tool by both candidates and centres to keep them on target to produce the different stages the treatment outlines. The paperwork should be kept in a folder and be referred to throughout the project.

Higher National Unit specification: statement of standards

Unit title: 3D Modelling and Animation

Outcome 2

Create 3D Computer Models for an Animation.

Knowledge and/or skills

- Make and modify 3D models to scale in line with reference drawings
- Surface 3D models appropriately

Evidence requirements

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

- Create at least four finished models with appropriate surfaces for inclusion in a 3D animation

Assessment guidelines

Candidates need to be shown how to use a piece of 3D software to model with and then be given time to familiarise themselves with its use. It is unlikely that candidates would use all of the tools available within the software. However, candidates should gain an understanding of the key elements and be able to recreate the reference drawings they have planned. It is advisable to work to a real life scale as this would enable the combining of 3D with live action which although is not a requirement of the Unit, is an essential point to realise. The surfaces should be as sophisticated or otherwise as candidates have planned. Again, given the complexity of 3D packages and the constraints of a 2 credit Unit candidates are unlikely to exhaust the limits of the software. Realising the reference drawings is the key aim of this Outcome.

Higher National Unit specification: statement of standards

Unit title: 3D Modelling and Animation

Outcome 3

Create a 3D Animation.

Knowledge and/or skills

- Assemble 3D models as specified by the storyboard
- Move models and camera to create an animated sequence
- Create final rendered output in appropriate format

Evidence requirements

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

- Produce a 30 second animation
- Save the animation in an appropriate format

Assessment guidelines

Candidates need to be shown how to animate using supplied 3D software and then be given time to familiarise themselves with its use. Candidates would not be expected to use all of the features available within the software. However, candidates should gain an understanding of the key elements of moving models and camera to be able to recreate the storyboard drawings they have planned. The animation should have a sense of pace and timing and fulfil the 30 second brief. The final renders screen size will be determined by its final use. For example, it might be included in an interactive multimedia application or be a suitable size for television work and this will also determine the storage medium for the final output.

Administrative Information

Unit code: DE2N 35

Unit title: 3D Modelling and Animation

Superclass category: JB

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: 3D Modelling and 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 designed to enable candidates to plan, create artwork and then animate in a 3D modelling and animation software environment. Useful background information can be found in a variety of 3D animation text books which are widely available. Likewise as well as using software manuals lecturers offering this Unit may find additional books useful. There may be helpful tutorials from the World Wide Web, although these should be carefully worked through prior to recommending to candidates to ensure that vital elements have not been omitted. Candidates may find it difficult to gauge the complexity of their proposals, and should rely on the lecturer's final judgement [in the capacity of "the client"] in deciding what to include in their finished production, so that this is achievable within the time allowed. The initial Treatment is a useful tool in giving an overview of the whole animation. A new treatment can quickly be drafted if an initial idea is found to be unworkable.

Guidance on the delivery and assessment of this Unit

Due to the complexity of 3D Animation it is expected that this Unit will be delivered as a stand alone Unit, as opposed to being integrated closely with other Units in any one course programme. Programmes within which it may fit could include Interactive Multimedia, Animation and 3D Computer Animation. This Unit could be delivered on a weekly or bi-weekly basis at the discretion of the centre. A typical delivery pattern for the Unit might be:

- Introduction to the Unit [1]
- Overview of the capabilities of 3D software – Modelling, Surfacing and Animation [1]
- Paperwork and planning exemplars [1]
- Working towards Outcome One - Treatment, Storyboards, Reference Drawings and Production Plan [2]
- Modelling - demonstration and practice of basic tools [4]
- Modelling - demonstration and practice of advanced operations [2]
- Creation of models [4]
- Surfacing – demonstration and application of techniques [1]
- Surface creation for chosen models [1]
- Animation - demonstration and practice of basic skills [1]
- Animation of final piece [4]
- Render and Saving of final material [1]
- Remediation [1]

NB: The numbers in brackets denote a notional number of 3 hour sessions for each activity.

Higher National Unit specification: support notes

Unit title: 3D Modelling and Animation

According to this proposed delivery schedule the assessments for each of the Outcomes should have the following pattern:

Outcome 1: Week 5
Outcome 2: Week 17
Outcome 3: Week 23

Open learning

This Unit could be delivered as open learning providing suitable online learning and assessment materials were developed. These could include: Video examples of lecturer demonstrations, online tutorials, sending of models and animation in production for evaluation and feedback. The challenge would be to find ways round snags in the use of software, which in a classroom situation can be quickly overcome by a brief explanation or extra class demonstration. If Open Learning candidates have to wait for answers this could hinder their workflow and cause slippage in Unit delivery schedules. The computer power of a candidate's host machine and software licensing is also an issue that would need to be addressed by the centre offering this award. Whilst scanning devices are relatively cheap, video cameras would be expensive for individuals to supply. If centres supply video cameras then this would make the Unit very expensive to deliver. To avoid plagiarism issues, candidates undertaking this Unit via Open Learning would be required to submit "screenshots" of work in progress to ensure the authenticity of their assessment evidence.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see Assessment and Quality Assurance for Open and Distance Learning (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document Guidance on Special Assessment Arrangements (SQA, 2001).

General information for candidates

Unit title: 3D Modelling and Animation

This Unit is designed to enable you to plan, create models and then animate them in a 3D software environment.

In Outcome 1 you should learn about planning a 3D computer generated animation sequence. You should learn how to write a treatment to outline a 3D animation proposal, how to use drawing and imaging skills to create a storyboard to client presentation standards, how to use drawing and/or imaging skills to create simple reference drawings for the main elements of the animation and how to write a project plan which establishes a production time scale for your 3D animation. In order to achieve a pass in Outcome 1 you need to: produce a treatment detailing such features as: Title; Duration; Target Audience; Aims; Structure; Equipment and Budget; storyboard a 30 second 3D animation with key frames; create at least three A4 reference drawings for the key scene elements/models to be generated and produce a written plan of the work to be done on a week by week basis.

In Outcome 2 you should learn about creating 3D computer models for an animation. You should learn how to make and modify 3D models to scale in line with reference drawings and how to surface 3D models appropriately. In order to achieve a pass in Outcome 2 you need to create at least four finished models with appropriate surfaces for inclusion in your 3D animation.

In Outcome 3 you should learn about how to create a 3D animation. You should learn how to assemble 3D models as specified by the storyboard you created, how to move models and camera positions appropriately to create an animated sequence and how to create the final rendered output in an appropriate format. In order to achieve a pass in Outcome 3 you need to: produce a 30 second 3D animation and save the animation in an appropriate format.

On completion of this Unit you should be able to:

- Plan a 3D computer generated animation sequence
- Create 3D computer models for an animation
- Create a 3D animation

Higher National Unit Specification

General information for centres

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

Unit code: DE2P 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and/or skills necessary to produce creative solutions using the full extent of bitmap graphic software packages. The main activities in the Unit are aimed at creating design solutions with the skills providing the tools for the candidate to fully express their creative thinking. Other activities highlight organisational skills and the preparation of materials for incorporation into a larger project.

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

1. Create composite images using bitmap graphic software.
2. Use advanced features of bitmap graphic software.
3. Analyse the optimisation of bitmap graphics.

Credit value: 2 HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it would be beneficial if candidates were proficient in computer use and saving files in a methodical way. Candidates should have a basic understanding of the manipulation of vector graphics and the planning process for producing design solutions within the constraints of a design brief. This may be evidenced by the possession of relevant National Units, HN units or experience. Higher Art and Design and/or Craft Design and Technology would provide useful background knowledge but are not essential to success in this Unit. It is recommended that candidates have completed HN Unit DE2W 34 Graphics for Creative Multimedia Design, or similar, prior to commencement of this Unit.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skill components.

Higher National Unit Specification

General information for centres (cont)

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. The most appropriate approach to delivery is one that requires the candidate to integrate all knowledge and/or skills for the unit to create bitmap graphic design solutions to a given brief. The lecturer could act as the client for the finished design or opportunities could be taken to work with external clients. In both cases the candidate should respond to feedback accordingly. The unit should be delivered as part of a cohesive course, although it can be delivered as a stand alone Unit.

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

- Complete design solutions containing elements of Outcomes 1, 2 and 3
- Written evidence of optimisation analysis

Higher National Unit specification: statement of standards

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

Unit code: MW/001

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 Composite Images using Bitmap Graphics Software.

Knowledge and/or skills

- Planning
- Scaling
- Opacity
- Layers
- Layout
- Guides
- Text
- Copyright Issues

Evidence requirements

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

- Plan the layout of at least 3 composite images with the use of roughs and sketches
- Use guides and layout techniques
- Create 3 composite images each containing at least 5 elements
- Adhere to the relevant copyright legislation

Assessment Guidelines

Although there is a wealth of copyright free images to be found candidates would benefit if they could produce every element of each image by the use of digital cameras or software. Candidates should be encouraged to contribute to discussions with the lecturer and their peers concerning the development of creative ideas for themselves and others in the class. In producing the composite bitmap images, candidates should be assessed on the application of all knowledge and/or skills over the entire Outcome. Each element of the Outcome need not include all knowledge and/or skills within itself.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

At least five different advanced editing elements should be used across the entire outcome. The implementation and number of advanced editing elements used beyond this for each design should be driven by the parameters of the given brief.

Outcome 2

Use advanced features of bitmap graphics software.

Knowledge and/or skills

- Layers
- Layer effects
- Special effect filters
- Masks
- Alpha Channels

Evidence Requirements

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

- Manipulate 3 composite images incorporating at least 5 advanced features of bitmap graphic software
- Effectively organise layers within each image incorporating an appropriate naming convention
- Control effect parameters within each image

Assessment Guidelines

Each composite image of the outcome need not include all knowledge and/or skills within itself. At least five different advanced editing elements should be used across the entire outcome. The implementation and number of advanced editing elements used beyond this for each design should be driven by the parameters of the given brief. The editable files should be saved in a folder separate from the finished work.

Higher National Unit specification: statement of standards (cont)

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

Outcome 3

Analyse the optimisation of bitmap graphics

Knowledge and/or skills

- File format
- Resolution
- Dithering
- File size
- Quality
- Bit depth
- Compression
- Delivery mechanism

Evidence requirements

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

- Produce a report of approximately 500 words on the impact of optimisation parameters when saving bitmap graphics in relevant file formats. At least two file formats should be covered. The report must contain good and bad examples of saved graphics and indicate clearly the reasoning for the use of specific settings.
- Save graphics in a format relevant to the given brief.

Assessment Guidelines

The report may cover format specific settings. The compression systems used in popular file formats should be investigated. The delivery mechanism and its limitation on graphics formats should be considered. The issue of file size versus image quality should be wholly consistent with the given brief.

Administrative Information

Unit code: DE2P 35

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

Superclass category: CE

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

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 can be delivered as a stand alone Unit. It would, however, be more beneficial for candidates if it is placed in an integrated context where the final graphics are included in a multimedia project and where the delivery mechanism plays a part in the definition of the brief itself. Useful background information can be found in a variety of textbooks which are widely available. Likewise, as well as using software manuals, centres offering this Unit may find additional books useful. There may be helpful tutorials from the World Wide Web although these should be carefully worked through prior to recommending to candidates to ensure their accuracy and that vital elements have not been omitted. Candidates may find it difficult to gauge the complexity of their designs and should rely on the lecturer's judgement [in the capacity of "client"] in deciding what to include in their finished work, so that this is achievable within the time allowed.

Guidance on the delivery and assessment of this unit

This Unit is practical in nature and should be delivered in a way that reflects the workflow process in industry. Every attempt should be made to place the subject in context by analysing existing work from a similar brief. This should be seen as a means of stimulating the imagination of candidates and not in providing the solution itself. Candidates will be asked to create roughs and sketches for three composite images that fit the design brief. The development steps should be documented in a production file in each case. The production file will be an important part of the assessment evidence. The final visual in each case will then be transferred to an electronic format using a bitmap graphic software package.

Although candidates should have to become familiar with bitmap graphic software packages during the delivery of the Unit, emphasis should not be placed on software specific skills but rather on the knowledge and skills contained within the Unit. This should ensure that revisions of software does not impact on the underlying knowledge and/or skills acquired through the achievement of the Unit. Quality issues such as aliasing and pixellation should be critically considered by candidates whilst manipulating the composite images.

Higher National Unit specification: support notes (cont)

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

The written evidence takes the form of a report into the optimisation process for bitmap images. The compression systems used in relevant file formats should be included.

Open learning

This Unit could be delivered by open learning provided suitable online materials were developed. There would also have to be a well defined brief which took into account any factors specific to open learning. Feedback from the lecturer and peers could come from the formation of an online group where discussions relevant to the Unit could take place.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special Needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Advanced Bitmap Graphics for Creative Multimedia Design

This Unit is designed to enable you to learn about the advanced techniques of bitmap graphic software to aid in the production of creative solutions. In working to the given brief you will use the knowledge and skills you acquire in a practical way to produce 3 creative solutions in the form of composite bitmap images. The development of ideas and the input of you're your lecturer and your peers are an important part of this process. You will use advanced features of bitmap graphic software for the creation and manipulation of the graphics. The design solutions may be included as part of a multimedia presentation or project.

In Outcome 1 you should learn how to create composite images using bitmap graphic software. You should learn about: planning, scaling, opacity, layers, layout, guides, text and copyright issues. In order to achieve a pass in Outcome 1 you will need to produce: a plan for the layout of at least 3 composite images using roughs and sketches; guides and layout techniques; the 3 composite images; and the relevant copyright legislation.

In Outcome 2 you should learn how to use the advanced features of bitmap graphic software. You should learn about: layers, layer effects, special effect filters, masks and Alpha Channels.

In order to achieve a pass in Outcome 2 you will need to: manipulate 3 composite images incorporating at least 5 advanced features of bitmap graphic software; effectively organise layers within each image incorporating an appropriate naming convention; and control effect parameters within each image.

In Outcome 3 you should learn how to analyse the optimisation of bitmap graphics. You should learn about: file formats, resolution, dithering, file size, quality issues, bit depth, compression and delivery mechanisms. In order to achieve a pass in Outcome 3 you will need to: produce a report of approximately 500 words on the impact of optimisation parameters when saving bitmap graphics in relevant file formats and save graphics in a format relevant to the given brief.

On completion of this Unit you should be able to:

- Create composite images using bitmap graphic software
- Use advanced features of bitmap graphic software
- Analyse the optimisation of bitmap graphics

Higher National Unit Specification

General information for centres

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Unit code: DE2R 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and/or skills necessary to produce advanced vector graphics for a design brief. The main activities in the Unit are aimed at creating design solutions with the skills providing the tools for the candidate to fully express their creative thinking. Other activities highlight organisational skills and the preparation of materials for incorporation into a larger project.

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

1. Prepare creative solutions for implementation using a vector drawing package.
2. Produce designs using vector graphics.
3. Use advanced operations of a vector drawing package.
4. Control colour and graphic elements in a design solution.

Credit value: 2 HN Credit(s) at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it would be beneficial if candidates were proficient in computer use and saving files in a methodical way. Candidates should have a basic understanding of the manipulation of vector graphics and the planning process for producing design solutions within the constraints of a design brief. This may be evidenced by the possession of relevant National Units, HN units or experience. Higher Art and Design and/or Craft Design and Technology would provide useful background knowledge but are not essential to success in this Unit. It is recommended that candidates have completed HN Unit DE2W 34 Graphics for Creative Multimedia Design, or similar, prior to commencement of this Unit.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Higher National Unit Specification

General information for centres (cont)

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. The most appropriate approach to delivery is one that requires candidates to integrate all knowledge and/or skills for the unit to create a design solution to a given brief. The assessor could act as the client for the finished design or opportunities could be taken to work with external clients. In both cases candidates should respond to feedback accordingly. The Unit should be delivered as part of a cohesive course, although it can be delivered as a stand alone Unit.

Assessment: This Unit is assessed by means of:

- A report into the subject of the given brief
- A production file containing planning documentation for the design solution
- 2 complete design solutions containing elements of Outcomes 1, 2, 3 and 4.

Higher National Unit specification: statement of standards

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Unit code: DE2R 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

Prepare creative solutions for implementation using a vector drawing package

Knowledge and/or skills

- Research into the subject of a given brief
- Planning of creative solutions to a design brief for implementation using vector drawing software
- Contribution to the decision process to select a final visual for each creative solution

Evidence Requirements

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

- A written report of approximately 500 words on the research of the subject matter of the given brief
- The development work for 2 creative solutions in the form of sketches and roughs
- A final visual for each creative solution.

All work must be organised and contained in a production folder.

Assessment Guidelines

The assessment of this Outcome should be combined with the other 3 Outcomes by using a design brief that covers all 4 Outcomes. In researching the given brief the candidates should be encouraged to gain a 'feel' for the subject by placing it in the context of a target audience. The candidate should be encouraged to contribute to discussions with the lecturer and their peers concerning the development of creative ideas for themselves and others in the group.

Higher National Unit specification: statement of standards (cont)

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Outcome 2

Produce designs using vector graphics

Knowledge and/or skills

- Shading
- Blending
- Stretching
- Skewing
- Rotating
- Use of guides in design process
- Use of grids in design process

Evidence requirements

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

- Produce vector graphic versions of 2 design solutions incorporating at least 5 editing operations within the parameters of a given brief
- Save vector graphics in relevant formats for a given brief.

All work must be organised and contained in a production folder.

Assessment Guidelines

The assessment of this Outcome should be combined with the other 3 Outcomes by using a design brief that covers all 4 Outcomes. It is recommended that the candidate produce vector graphic versions of the design solutions in Outcome 1. This integration should highlight the process of working to a client brief. In producing the vector graphics, candidates should be assessed on the application of all knowledge and/or skills over the entire Outcome. Each element of the outcome need not include all knowledge and/or skills within itself. It is suggested that at least five different advanced editing elements be used across the entire Outcome. The implementation and number of advanced editing elements used beyond this for each design should be driven by the parameters of the given brief.

Higher National Unit specification: statement of standards (cont)

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Outcome 3

Use advanced operations of a vector drawing package

Knowledge and/or skills

- Text manipulation
- Perspective
- Extrusion
- Text to path manipulation
- Blend to path manipulation
- Interaction with other software packages

Evidence requirements

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

- Produce vector graphic versions of 2 design solutions incorporating at least 5 advanced operations of a vector drawing package within the parameters of a given brief
- Save vector graphics in relevant formats for a given brief.

All work must be organised and contained in a production folder.

Assessment Guidelines

The assessment of this Outcome should be combined with the other 3 Outcomes by using a design brief that covers all 4 Outcomes. It is recommended that the candidate produce vector graphic versions of the design solutions produced in Outcome 1. This integration should highlight the process of working to a client brief. In using the advanced features of vector graphics, candidates should be assessed on the application of all knowledge and/or skills over the entire outcome. Each element of the outcome need not include all knowledge and/or skills within itself. It is suggested that at least five different advanced editing elements be used across the entire Outcome. The implementation and number of advanced editing elements used beyond this for each design should be driven by the parameters of the given brief.

Higher National Unit specification: statement of standards (cont)

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Outcome 4

Control colour and graphic elements in a design solution

Knowledge and/or skills

- Use of system and custom colour palettes relevant to a given brief
- Advanced control of fill and line in graphic elements

Evidence requirements

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

- Control fills and lines of vector graphics
- Manipulate vector graphics within colour palettes relevant to a given brief
- Save 3 versions of vector graphics showing the development of each
- Save final vector graphic files in a format relevant to the given brief
- Organise file / folder structure incorporating an appropriate file naming convention.

Assessment Guidelines

The assessment of this Outcome should be combined with the other 3 Outcomes by using a design brief that covers all 4 Outcomes. Candidates should be encouraged to maintain an effective file/folder structure as they work. This should incorporate an appropriate naming convention. It is suggested that an electronic 'work in progress' portfolio be created showing the stages of development of the vector graphics. This portfolio should be separate from the finished work and itself keep to a naming convention. The created vector graphics should be saved in a format consistent with the delivery mechanism.

Administrative Information

Unit code: DE2R 35

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Superclass category: CE

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Advanced Vector Graphics for Creative Multimedia Design

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 can be delivered as a stand alone Unit. It would, however, be more beneficial for candidates if it is placed in an integrated context where the final graphics are included in a multimedia project where the delivery mechanism plays a part in the definition of the brief itself. Useful background information can be found in a variety of textbooks which are widely available. Likewise, as well as using software manuals, centres offering this Unit may find additional books useful. There may be helpful tutorials from the World Wide Web although these should be carefully worked through prior to recommending to candidates to ensure their accuracy and that vital elements have not been omitted. Candidates may find it difficult to gauge the complexity of their designs and should rely on the lecturer's judgement [in the capacity of "client"] in deciding what to include in their finished work, so that this is achievable within the time allowed.

Guidance on the delivery and assessment of this unit

This Unit is practical in nature and should be delivered in a way that reflects the workflow process in industry. The written evidence takes the form of a research report into the subject matter of the brief. Every attempt should be made to place the subject in context by analysing existing work from a similar brief. This should be seen as a means of stimulating the imagination of the student and not in providing the solution itself. The candidate will be asked to create roughs and sketches for two discrete solutions to the design brief. The development steps should be documented in a production file in each case. The production file will be an important part of the assessment evidence. The final visual in each case will then be transferred to an electronic format using a vector graphic software package.

Although candidates should have to become familiar with vector software packages during the delivery of the unit, emphasis should not be placed on software specific skills but rather on the knowledge and skills contained within the Unit. This should ensure that revisions of software does not impact on the underlying knowledge and/or skills acquired through the achievement of the Unit.

Higher National Unit specification: support notes

Unit title: Advanced Vector Graphics for Creative Multimedia Design

Open learning

This Unit could be delivered by open learning provided suitable online materials were developed. There would also have to be a well defined brief which took into account any factors specific to open learning. Feedback from the lecturer and peers could come from the formation of an online group where discussions relevant to the Unit could take place.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special Needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

Higher National Unit specification

Unit title: Advanced Vector Graphics for Creative Multimedia Design

General information for candidates

This Unit is designed to enable you to learn about the process of researching a subject for which you are to create a design solution. In working to the given brief you will use the knowledge and skills you acquire in a practical way to produce 2 design solutions in the form of vector graphics. The development of ideas and the input of both lecturer and your peers are an important part of the process. You will use advanced features of vector graphic software for the creation and manipulation of the graphics. The design solutions may be included as part of a multimedia presentation or project.

In Outcome 1 you should learn how to, research into the subject of a given brief, plan creative solutions to a design brief and implement your plan using vector drawing software and contribute to the decision making process to select a final visual for each creative solution. In order to achieve a pass in Outcome 1 you will need to produce: a written report of approximately 500 words on the research of the subject matter of the given brief; the development work for 2 creative solutions in the form of sketches and roughs; and a final visual for each creative solution.

In Outcome 2 you should learn how to use various techniques used in the production of vector graphics, such as, shading, blending, stretching, skewing, rotating, guides, and grids. In order to achieve a pass in Outcome 2 you will need to: produce vector graphic versions of 2 design solutions and save vector graphics in relevant formats for a given brief.

In Outcome 3 you should learn how to use various advanced features in the production of vector graphics, such as, text manipulation, perspective, extrusion, text to path manipulation, blend to path manipulation, interaction with other software packages. In order to achieve a pass in Outcome 3 you will need to: produce vector graphic versions of 2 design solutions incorporating at least 5 advanced operations of a vector drawing package within the parameters of a given brief and save vector graphics in relevant formats for a given brief.

In Outcome 4 you should learn about the control of fill and line in graphic elements and how to use custom colour palettes relevant to a given brief. In order to achieve a pass in Outcome 4 you will need to: control fills and lines of vector graphics; manipulate vector graphics within colour palettes relevant to a given brief; save 3 versions of vector graphics showing the development of each; save final vector graphic files in a format relevant to the given brief; and organise your file / folder structure incorporating an appropriate file naming convention.

By the end of this Unit you should be able to:

- Prepare creative solutions for implementation using a vector drawing package
- Produce designs using vector graphics

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

General information for candidates (cont)

- Use advanced operations of a vector drawing package
- Control colour and graphic elements in a design solution.

Higher National Unit Specification

General information for centres

Unit title: Audio Visual Techniques for Multimedia Applications

Unit code: DE2T 34

Unit purpose: The purpose of this unit is to provide candidates with the knowledge and/or skills necessary to acquire audio and video material and manipulate and edit the acquired material within multimedia contexts.

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

1. Acquire video sequences using a range of video sources.
2. Acquire audio material from a range of sources.
3. Manipulate and edit audio and video elements within the context of a cohesive multimedia product.

Credit value: 2 HN Credits at SCQF level 7: (16 SCQTCAT credit points at SCQF level 7*)

**SCOTCAT 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 SCOTCAT 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. However, it is recommended that candidates should have some prior knowledge and skills in audio and video. This may be evidenced by the possession of relevant National Units, HN units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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.

Higher National Unit Specification

General information for centres (cont)

Assessment: This Unit is assessed by means of one finished product containing all the knowledge and/or skills elements of Outcomes 1, 2 and 3. Candidates must produce a log/production file containing written evidence of planning, procedures and sources of acquired material. Candidates must also produce an evaluation of the finished product that must contain an analysis of the effectiveness of the strategies and procedures employed. Where this unit is offered as part of an integrated course of work, the evidence requirements can be contained within other coursework documentation, for example, Project Management. However, clear guidelines must be issued to candidates as to evidence requirements for this Unit within the overall project assessment requirements.

Higher National Unit specification: statement of standards

Unit title: Audio Visual Techniques for Multimedia Applications

Unit code: DE2T 34

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

Acquire video sequences using a range of video sources.

Knowledge and/or skills

- Use video cameras to acquire sequences to specific quality parameters contained within a given brief.
- Use digital media and/or analogue Video Cassette Recorders to acquire sequences to specific quality parameters contained within a given brief.

Evidence Requirements

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

1. Capture video sequences using a digital and/or analogue camera which are:
 - i) Correctly focused within the parameters of given brief.
 - ii) Correctly white balanced within the parameters of given brief.
 - iii) Correctly framed within the parameters of given brief.
2. Capture video images using digital media/analogue Video Cassette Recorders which are:
 - i) Correctly captured within the parameters of given brief.
 - ii) Comply with current legal requirements.

An assessor's checklist must be used to record the required assessment information.

Assessment Guidelines

It is recommended that the assessment of this outcome should be combined with the other Outcomes by using a project that covers all 3 Outcomes. If the Outcome is assessed in isolation it should be based on the product created by candidates and the contents of a log that records the planning and execution of the process.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: Audio Visual Techniques for Multimedia Applications

Outcome 2

Acquire audio material from a range of sources.

Knowledge and/or skills

- Use recording equipment (audio and/or video) to acquire original audio material to a specified quality within a given brief.
- Acquire audio material from pre-existing sources to a specified quality within a given brief.

Evidence requirements

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

- Capture audio sequences which are:
 - (i) Clear and undistorted.
 - (ii) Appropriate within the parameters of given brief.
 - (iii) Comply with current legal requirements.

An assessor's checklist must be used to record the required assessment information.

Assessment Guidelines

The assessment of this Outcome should be combined with the other Outcomes by using a project that covers all 3 Outcomes. If the Outcome is assessed in isolation it should be based on the product created by candidates and the contents of a log that records the planning and execution of the process.

Outcome 3

Manipulate and edit audio and video elements within the context of a cohesive multimedia product.

Knowledge and/or skills

- Produce short edited sequences to specified quality parameters as described within a given brief.
- Convert sequences to a format suitable for inclusion in a specified multimedia brief.
- Incorporate sequences into a specified multimedia product/presentation.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: Audio Visual Techniques for Multimedia Applications

Evidence requirements

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

- Edit short sequences which are competent with regard to: pace, timing and narrative flow.
- Edit short sequences that are competent within the quality parameters of a given brief.
- Convert edited sequences into a format suitable for inclusion in a multimedia product/presentation.
- Incorporate edited sequences into a multimedia product/presentation.

An assessor's checklist must be used to record the required assessment information.

Candidates must keep an accurate log book\production file containing all relevant paperwork including storyboards/scripts, production schedules and production diary.

Candidates will also be required to provide a written evaluation that should include:

- i) An evaluation of the quality of the work produced.
- ii) An evaluation of the process of acquisition (planning, scheduling, acquiring, editing, converting, incorporating).
- iii) An evaluation of personal performance in undertaking the tasks outlined in the brief.

The completed evaluation report should be approximately 1,000 words in length.

The product created by candidates must show that all of the Evidence Requirements for Outcomes 1, 2 and 3 have been met.

The product, the log book\production file, the evaluation report and the appropriate assessor's checklist must be included in the portfolio of evidence presented by candidates for the Unit.

Assessment Guidelines

The assessment of this Outcome should be combined with the other Outcomes by using a project that covers all 3 Outcomes. If the Outcome is assessed in isolation it should be based on the product created by candidates and the contents of a log that records the planning and execution of the process.

Administrative Information

Unit code: DE2T 34

Unit title: Audio Visual Techniques for Multimedia Applications

Superclass category: KG

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Audio Visual Techniques for Multimedia Applications

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 primarily concerned with equipping candidates with a basic grounding in audiovisual acquisition and manipulation within multimedia contexts. The emphasis is on producing short video and audio sequences that can be incorporated into a specified multimedia brief. Candidates will be expected to produce material that conforms to standard requirements with regard to the language, common practices, legal and health and safety considerations of the medium. The emphasis throughout should be on the acquisition of prescribed material to meet the needs of a given multimedia brief. This brief may be generated from within the requirements of a multimedia project.

If this Unit is delivered as a freestanding unit, then the evidence generated for it will still need to be incorporated into a basic multimedia presentation.

Centres should feel free to adapt the delivery of the Unit to fit the specific requirements of their course structures.

Candidates should be able to complete the Unit using basic acquisition equipment. There is no requirement to produce material using broadcast quality equipment. Candidates should be able to complete the Unit using a range of video editing and audio software. No particular packages are specified.

The emphasis of the Unit should be on achieving the best possible quality of production within the constraints of the brief and available resources.

Guidance on the delivery and assessment of this unit

This Unit is designed to be practical in nature and, as such, the keeping of an accurate log book\production file containing all relevant paperwork (storyboards/scripts, production schedules and production diary) will be an important part of assessment evidence.

This Unit could be used to enable candidates to acquire audio visual material for inclusion in other multimedia projects for other Units.

Higher National Unit specification: support notes (cont)

Unit title: Audio Visual Techniques for Multimedia Applications

Guidance on the delivery and assessment of this unit (cont)

It is strongly recommended that the Unit be assessed using one assessment based on carrying out a project to a given brief. If the Outcomes are assessed in isolation this should be based on the product created by candidates and the contents of a log that records the planning and execution of the process.

Candidates will also be required to provide a written evaluation that should include:

- iv) An evaluation of the quality of the work produced.
- v) An evaluation of the process of acquisition (planning, scheduling, acquiring, editing, converting, incorporating).
- vi) An evaluation of personal performance in undertaking the tasks outlined in the brief.

The completed evaluation should be at least 1,000 words in length.

Lecturers will also need to record achievement of element briefs on an assessors checklist.

Open learning

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Audio Visual Techniques for Multimedia Applications

The Unit is designed to provide you with the knowledge and/or skills necessary to acquire audio and video material and manipulate and edit the acquired material within multimedia contexts.

You should learn about and be responsible for:

- Planning the acquisition of video and audio material from live and pre-recorded sources.
- Editing the acquired material using video and/or audio editing software.
- Converting material for inclusion in a multimedia production.
- Incorporating the material into a multimedia production.

You will be assessed on:

- The standard of the material you acquire.
- The standard of the paperwork produced and log book.
- The standard of the edited sequences.
- The standard of the final product and process evaluation.

One assessment will be used which will involve you in creating a multimedia product to the standards given above. You will need to produce a portfolio of evidence which includes:

- A log book or production file containing all relevant paperwork including storyboards/scripts, production schedules and production diary
- The completed product
- A written evaluation of your project of approximately 1000
- A completed assessors' checklist that authenticates what you have done.

On completion of the unit you should be able to:

- 1) Plan the acquisition of audio and video material.
- 2) Acquire video and audio material according to plan.
- 3) Edit short video sequences.
- 4) Edit short audio sequences.
- 5) Convert material to formats suitable for inclusion in multimedia projects.

Higher National Unit Specification

General information for centres

Unit title: Developing Data Driven Applications

Unit code: DE2V 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and/or skills in the development of applications that use database connectivity for the provision and control of data elements. Candidates should gain skills in the construction of databases and their associated client applications

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

1. Design and develop a client application for database connectivity.
2. Design and implement a relational database for use with an application.
3. Implement scripts to manipulate databases.
4. Test the completed product.

Credit value: 2X HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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 should have some prior knowledge and skills in Computing/IT. This may be evidenced by the possession of relevant National Units, HN units or experience. It is strongly recommended that candidates have completed or are concurrently undertaking the HN Unit, Scripting for Interactivity or a Unit of similar standing.

Core skills: There may be opportunities to gather evidence towards core skills 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 is a design exercise for the scripting solution. Outcome 2 is a design exercise for a database. Outcome 3 is a practical exercise where a scripting solution is used to interact with a database. The assessment

General information for centres (cont)

for Outcome 4 is to test the solution and produce the documentation for the tests performed.

Higher National Unit specification: statement of standards

Unit title: Developing Data Driven Applications

Unit code: MW/004

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

Design and develop a client application for database connectivity.

Knowledge and/or skills

- Identify functional requirements
- Identify inputs / outputs and processes
- Define variables
- Specify the user interface
- Develop pseudocode for main modules / functions / procedures

Evidence Requirements

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

Produce a design document for a database connected application described in a given brief. This design must contain the following sections:

- Functional requirements of the system.
- The inputs, outputs and processes required for the system.
- A data dictionary describing variables and their use.
- User interface designs.
- Pseudocode for the modules of the system.

The design document must be produced as part of a portfolio of evidence for the Unit.

Higher National Unit specification: statement of standards (cont)

Unit title: Developing Data Driven Applications

Assessment Guidelines

Candidates should be given a brief for a database connected application. At this stage the concern is the client side of the application.

Candidates should be encouraged to use a standard format for the design document, based on a house style. This could be issued to candidates as a template.

Higher National Unit specification: statement of standards (cont)

Unit title: Developing Data Driven Applications

Outcome 2

Design and implement a relational database for use with an application.

Knowledge and/or skills

- Determine relationships between entities
- Normalise data to third normal form
- Construct tables with appropriate field characteristics
- Select appropriate unique keys
- Construct links between tables

Evidence requirements

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

Design and implement a relational database. The design document must include at least the following:

- An Entity Relationship (ER) model of the data.
- Data items arranged in third normal form (3NF), showing intermediate steps in normalisation process
- Identification of primary keys in each table.
- Identification of data type and relevant characteristics of each attribute.
- Identification of the relationships between tables showing foreign keys.

The model used must have representatives of at least three data types.

The model used must not have less than four tables when normalised.

On average, each table should comprise not less than four fields.

The design document must be produced as part of a portfolio of evidence for the Unit.

Assessment Guidelines

Candidates should be supplied with documentation standards. The model may be given in the form of a brief, or may be derived from a previous Outcome.

Higher National Unit specification: statement of standards (cont)

Unit title: Developing Data Driven Applications

Outcome 3

Implement scripts to manipulate databases.

Knowledge and/ or skills

- Initiate database connection
- Update a database
- Query a database
- Format query results for subsequent use
- Validate user input
- Terminate database connection

Evidence requirements

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

Implement the required scripts to interact with a database. The scripts must:

- Establish a database connection.
- Close the database connection.
- Populate the database.
- Validate user input.
- Update the database.
- Query the database.
- Format query results for subsequent use.
- Contain internal documentation.

Submissions must be in the form of internally documented scripts. The submission must be produced as part of a portfolio of evidence for the Unit.

Assessment Guidelines

Candidates should be supplied with documentation standards. The structure of the database should be available to the candidate before implementation is attempted. This may be given in the form of a brief, or may be the result of a previous Outcome.

Higher National Unit specification: statement of standards (cont)

Unit title: Developing Data Driven Applications

Outcome 4

Test the completed product

Knowledge ad/or skills

- Prepare a test strategy
- Select and record test data
- Record test results
- Evaluate test results.

Evidence requirements

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

Produce and document a test strategy for a system. The test strategy must be based on the specification for a system. The documentation must contain at least the following sections:

- A test strategy.
- Test data.
- The results of performing the tests specified in the test data section.
- An evaluation of the test results.

The test data section must contain sufficient test items to give confidence that the system conforms to the specification. The submission must be produced as part of a portfolio of evidence for the Unit.

Assessment Guidelines

The methodology used to develop the test strategy should be based on current techniques, and must be appropriate for the nature of the system being tested.

Administrative Information

Unit code: DE2V 35

Unit title: Developing Data Driven Applications

Superclass category: CB

Date of publication: November 2003

Version: 1

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Developing Data Driven Applications

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 has been developed to form part of the programming cluster option of the HND Interactive Multimedia. It is anticipated that the Unit would be delivered in the second year of such an award if traditional delivery schedules are being observed. The accompanying Unit in this cluster is Scripting for Interactivity.

Guidance on the delivery and assessment of this unit

It is anticipated that this unit will be delivered in a client/server type of environment, with the scripting solution being implemented on a client system, and the database implemented on a server type system. There are a range of proprietary and open source solutions that could be used for this, including php and MySQL. Note that a desktop oriented database package may not be a satisfactory solution. It may be that it is appropriate for the client side of the system to reside on the same system as the server, and indeed it may be possible to build a data driven application such as a CD-ROM based encyclopaedia as the product, as long as it follows the approach of a client script interacting with a database 'back-end'. (If pursuing this approach, please note that there is a requirement to update the database),

Outcome 1 is concerned with the development of the application of the system. Note that the requirements of the system are to be developed, and there is no mention of either implementation of the scripting solution or the database itself.

Outcome 2 is concerned with the design of a database. It is suggested that candidates are introduced to ER modelling early on in the delivery of the Unit and given practice in normalisation. Candidates could usefully investigate the range of database solutions available, including the 'high-end' commercial products, commodity database systems and the open source solutions. The concept of scalability of these systems could be introduced. It would be beneficial to explain that database systems really come into their own when using large data sets

Outcomes 1 and 2 could be undertaken either concurrently or serially.

Outcome 3 requires that candidates are familiar with the scripting language used. This may have already been covered in a previous Unit, e.g. Scripting for Interactivity.

Higher National Unit specification: support notes (cont)

Unit title: Developing Data Driven Applications

For Outcome 4, it is suggested that candidates are introduced to at least the concepts of white/glass box testing, black box testing, incremental testing, top down testing and bottom up testing. It may also be beneficial to discuss the concept of stress testing, especially in the context of multiple users sharing a server to run scripted applications.

The assessment has been specified in such a way that each Outcome could be from a separate brief, or following through a single brief.

Open learning

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Developing Data Driven Applications

In the content of this Unit, a Data Driven Application is a system which comprises a program (a front end script) interacting with a large data collection (a database) in order to fulfil its objectives. An example of such a system is a large e-commerce site where stock levels are maintained in a database system.

For the first Outcome you will be required to design the system. This will include the functional requirements of the system and identifying the data involved in the system.

The second Outcome covers the design of the database itself. This will involve creating an Entity Relation (ER) model, and following a procedure called normalisation. This is to ensure that the data can be stored effectively in the database system.

Outcome 3 will involve writing the scripts that comprise the user interface and interact with the database. These scripts will include validation (ensuring that only valid data can be entered) and updating the database by adding or modifying data items.

For Outcome 4 you will be required to test a system to ensure that it accurately meets its specifications. This means that that you will have to devise a series of test data to be entered into the system and monitoring the effect that these data items have on the system. If you find errors, then these will be recorded in the test log.

Higher National Unit Specification

General information for centres

Unit title: Graphics for Creative Multimedia Design

Unit code: DE2W 34

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills necessary to create, acquire, manipulate and output Graphic elements within a multimedia context. The Unit should be delivered as part of a cohesive course, although it can be delivered on its own.

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

1. Describe practical and aesthetic factors in the use of colour.
2. Describe practical and aesthetic factors in the use of type forms.
3. Create bitmap graphic files.
4. Create vector graphic files.

Credit value: 2 HN Credits at SCQF level 7: (16 SCOTCAT credit points at SCQF level 7*)

**SCOTCAT 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 SCOTCAT 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 should have a basic knowledge of Graphic Design theory and a familiarity with computers and software packages. This may be evidenced by the possession of relevant National Units, HN Units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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. The most appropriate approach to delivery is one that requires candidates to integrate all knowledge and/or skills for the Unit to create a design solution to a given brief. The assessor should act as the client for the finished design and the candidate should respond accordingly.

General information for centres (cont)

Assessment: This Unit will be assessed by means of

- Written evidence of planning for design solutions
- A finished design solution containing elements of Outcomes 1, 2, 3 and 4
- Written evidence of evaluations.

Higher National Unit specification: statement of standards

Unit title: Graphics for Creative Multimedia Design

Unit code: DE2W 34

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

Describe practical and aesthetic factors in the use of colour

Knowledge and/or skills

- Colour wheel
- Colour theory
- Use of colour in design
- Colour association
- Colour perception

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can in a report of approximately 500 words:

- Produce a written evaluation of 3 pre-existing designs covering all knowledge and/or skills elements
- Produce a written evaluation of 2 screen based designs covering all knowledge and/or skills elements.

Candidates must also produce:

- Two screen based designs within the parameters of a given brief

Assessment Guidelines

Candidates may use the evaluation process of pre-existing and produced material to describe the practical and aesthetic factors in the use of colour for screen based designs. Pre-existing materials may come from a variety of sources such as books, magazines, CD ROMs or web pages. It is suggested that candidates work to a simple given design brief that leads to the use of all the knowledge and skills. The design brief may also be broad enough to include the knowledge and/or skills elements of Outcome 2.

Higher National Unit specification: statement of standards (cont)

Unit title: Graphics for Creative Multimedia Design

Outcome 2

Describe practical and aesthetic factors in the use of type forms

Knowledge and/or skills

- Font
- Style
- Colour
- Size
- Alignment
- Leading
- Kerning

Evidence requirements

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

- produce a written evaluation of 3 type elements from within pre-existing print or screen based materials covering all knowledge and/or skills elements
- produce 2 screen based type elements within the parameters of a given brief

Assessment Guidelines

Candidates may use the evaluation process of pre-existing and produced material to describe the practical and aesthetic factors in the use of type forms for screen based designs. Pre-existing or screen based materials may come from a variety of sources such as books, magazines, CD ROMs or web pages. All elements within the knowledge and/or skills should be included in each evaluation. It is suggested that candidates work to a simple given design brief that leads to the use of all the knowledge and skills elements. The design brief may also be broad enough to include the knowledge and/or skills of Outcome 1.

Higher National Unit specification: statement of standards (cont)

Unit title: Graphics for Creative Multimedia Design

Outcome 3

Create Bitmap Graphics

Knowledge and/or skills

- Plan a digital photographic session
- Capture still images using a digital camera
- Plan a digital scanning session
- Capture still images using digital scanning devices
- Plan the use of bitmap editing tools
- Use a range of bitmap editing tools on still images

Evidence Requirements

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

- Produce a written plan for a digital photographic session to a given brief covering at least:
 - Zoom settings (optical and/or digital)
 - Aperture settings
 - Depth of field
 - Photograph composition
- Produce a written justification of the choices made
- Capture 2 still images using a digital camera
- Review any changes to the plan, made during the shoot

- Produce a written plan for a digital photographic session to a given brief covering at least:
 - Resolution
 - Colour depth
 - Brightness
 - Contrast
 - Scan area
- Produce a written justification of the choices made
- Capture 2 still images using scanning devices which are correctly acquired
- Review any changes to the plan, made during the scanning session

Higher National Unit specification: statement of standards (cont)

Unit title: Graphics for Creative Multimedia Design

- Produce a written plan for and edit 4 still images using at least 5 of the following common editing tools:
 - Brush
 - Clone
 - Fill
 - Filter
 - Layers
 - Opacity
 - Selection
 - Text

- Save 4 still images in an appropriate format for the given brief

The capture of images using a digital camera and scanning device must be recorded by the use of suitable assessor checklists.

Assessment Guidelines

It is suggested that candidates work to a given design brief that leads to the use of all knowledge and/or skills. The brief may involve candidates in capturing images based around a subject or theme.

In planning camera or scanner capture candidates should be encouraged to plan in detail for each image. Appropriate planning should help candidates to develop the thought processes needed for independent and intuitive work. In editing still images, candidates may apply common editing tools in addition to those stipulated in the evidence requirements. It is not any specific editing tools that are being assessed, more the process of editing. The appropriate file formats to be considered may be Web, CD ROM, DVD, Interactive TV etc.

Higher National Unit specification: statement of standards (cont)

Unit title: Graphics for Creative Multimedia Design

Outcome 4

Create vector graphic files

Knowledge and/or skills

- Add and manipulate vector shapes
- Add and manipulate vector lines
- Use a range of fills
- Add text to a vector image
- How to trace a bitmap image
- How vector graphics are produced
- How vector and bitmap graphics information is stored

Evidence requirements

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

- Produce vector graphic versions of 3 given designs
- Manipulate vector graphics covering at least:
 - Fill (solid, gradient, radial)
 - Opacity
 - Layers
- Incorporate a traced bitmap image into each vector graphic
- Save 3 vector graphics in the format appropriate to the given brief
- Produce a short report of approximately 250 words detailing how vector and bitmap graphics information is stored.

Assessment Guidelines

It is suggested that in creating vector graphics candidates work to a given design brief that leads to the use of all the knowledge and/or skills. The design brief could be for a company logo or parts of an application interface. A variety of delivery systems such as Web, CD ROM, DVD, Interactive TV etc may be considered.

Administrative Information

Unit code: DE2W 34

Unit title: Graphics for Creative Multimedia Design

Superclass category: CE

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Graphics for Creative Multimedia Design

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 introduce candidates to graphics for Creative Multimedia Design. Useful background information can be found in a variety of textbooks which are widely available. Likewise, as well as using software manuals, centres offering this Unit may find additional books useful. There may be helpful tutorials from the World Wide Web although these should be carefully worked through prior to recommending to candidates to ensure their accuracy and that vital elements have not been omitted. Candidates may find it difficult to gauge the complexity of their designs and should rely on the assessor's judgement [in the capacity of "client"] in deciding what to include in their finished work, so that this is achievable within the time allowed.

It is suggested that candidates use software, editing tools, filters, etc, in a documented, thought out constructive fashion that relates to the design brief. The ability to use software, etc, should not be confused with the realisation of a design brief which is at the heart of this Unit. Similarly digital photography and scanning should be thought out and documented in relation to the design brief.

The theory of colour should be taught to a level where candidates can use the information to fully realise a design brief. Focusing on the use of colour in design, colour associations, colour coding and colour perceptions in relation to moods, cultures, fashions, eras, etc.

Guidance on the delivery and assessment of this unit

Although candidates should have to become familiar with a range of software packages during the delivery of the Unit, emphasis should not be placed on software specific skills but rather on the specific graphical knowledge and skills required within the Unit. This will ensure that revisions of software does not impact on the underlying knowledge and/or skills acquired through the achievement of the Unit.

It is recommended that Outcomes 1 and 2 be taught first as these provide the knowledge which should be utilised in Outcomes 3 and 4.

Candidates who have not studied Graphics before should be taught to a level whereby they can independently create design solutions using a thorough knowledge of colour

Higher National Unit specification: support notes (cont)

Unit title: Graphics for Creative Multimedia Design

theory and fonts. Candidates who have studied Graphic Design at introductory levels should be enabled to develop and stretch their knowledge and/or skills.

There are opportunities to integrate Outcomes in the Unit, particularly Outcomes 1 and 2, then 3 and 4. It should also be possible to integrate Outcomes in this Unit with those of other Units in the HN Multimedia awards and this approach is recommended to centres as a means of creating more holistic approaches to multimedia generation and to reducing the assessment burden on candidates.

Open learning

This Unit could be delivered by open learning provided suitable online materials were developed. There would also have to be a well defined brief which took into account any factors specific to open learning.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Graphics for Creative Multimedia Design

This Unit is designed to enable you to evaluate graphic designs for multimedia applications in terms of colour and typography as well as to create and manipulate bitmap and vector graphics. It is a practically based Unit but some necessary theory has to be absorbed. The key to creating effective graphics for a multimedia project such as a Web page is not in the random 'try it and see' approach but in a set of thought processes that brings to fruition the ideas you feel work best for a client. In working to a given brief you will use the knowledge and skills you have acquired in a practical way to produce design solutions. These design solutions should be included as part of a multimedia presentation or project.

In this Unit you should be encouraged to discover useful background information on graphics and graphic design in relation to multimedia applications from a variety of text books, software manuals, on line tutorials and the World Wide Web. At first, you may find it difficult to gauge the complexity of your designs and you should rely on your lecturer's judgement (with the lecturer acting in the capacity of 'the client') in deciding what to include in your finished work, so that this is achievable within the time allowed for the Unit.

You should learn about graphics software, editing tools, filters, etc, as well as how to document your work in relation to a given design brief. You are generally not being assessed on your ability to use graphics software as such, rather, you are being assessed on your ability to realise the features of the given design brief. You should learn about the theory of colour and how to focus on the use of colour in design, colour associations, colour coding and colour perceptions in relation to moods, cultures, fashions, eras, etc.

In Outcome 1 you will be required to produce 2 screen-based designs to a given brief that demonstrates your use and understanding of the practical and aesthetic factors involved in the use of colour. You will also be asked to produce a written evaluation of the 2 screen based designs you have produced and of 3 pre-existing designs.

In Outcome 2 you will be required to produce 2 screen-based type elements to a given design brief that demonstrates your use and understanding of the practical and aesthetic factors involved in the use of type forms. You will also be asked to produce a written evaluation of 3 pre-existing type elements.

In Outcome 3 you will be required to produce written plans for conducting a digital photographic session and a digital scanning session to a given brief, which includes justifications of the choices you made. You will then capture a number of still images using a digital camera and scanner and edit and save the images in appropriate bitmap file formats for storage on CD ROM, DVD, the Web and Interactive TV.

In Outcome 4 you will be required to produce vector graphic versions of 3 given designs, to manipulate, trace and save the images in appropriate vector file formats for

General information for candidates (cont)

storage on appropriate media. You will also produce a short report detailing how vector and bitmap graphics information is stored.

Higher National Unit Specification

General information for centres

Unit title: Interactive fiction

Unit code: DE2X 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills to enable them to create an interactive sequence for a computer-based fiction product.

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

1. Describe the core concepts of computer-based interactivity.
2. Critically evaluate the interactive elements of a range of computer-based fiction sequences.
3. Develop an interactive computer-based fiction sequence to a given brief.

Credit value: 2 HN Credit(s) at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it is recommended that candidates should have some prior knowledge and skills in human-computer interface design. This may be evidenced by the possession of relevant National Units, HN units or experience. It is recommended that candidates have completed HN Unit DE34 34 User Interface Development. It would also be beneficial if candidates had completed HN Unit DE30 35 Narrative and Genre in Computer Games.

Core skills: There may be opportunities to gather evidence towards core skills 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.

Higher National Unit Specification

General information for centres (cont)

Assessment: This unit should be assessed by means of:

1. Written or oral responses showing that candidates can describe the core concepts of computer-based interactivity.
2. Written or oral responses showing that candidates can critically evaluate a range of interactive elements of 3 different computer-based fiction sequences
3. A completed fiction sequence, including supporting documentation explaining why the interactive elements used were chosen.

Higher National Unit specification: statement of standards

Unit title: Interactive fiction

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

Describe the core concepts of computer-based interactivity

Knowledge and/or skills

- Core concepts of computer-based interactivity

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by producing a report or oral presentation of not less than 600 words (or oral equivalent) describing the core concepts of computer-based interactivity.

The report must correctly describe the core concepts of computer-based interactivity:

- Perspective (2D, isometric, first person, bird's eye etc),
- Interface (goal, control, movement, object manipulation, help, dialog, inventory, hidden/invisible elements, control devices, feedback etc),
- Story rhythm (key tasks, branching paths etc),
- puzzle/game descriptions,
- Game difficulty/diversity distribution.
- How at least one core concept has made a significant contribution to the development of computer-based interactive fiction

Assessment Guidelines

The report or presentation should include a general description of each of the core concepts listed above and a specific detailed description of at least one core concept that has made a significant contribution to the development of computer-based interactive fiction.

Higher National Unit specification: statement of standards (cont)

Unit title: Interactive fiction

Outcome 2

Critically evaluate the interactive elements of a range of computer-based fiction sequences

Knowledge and/or skills

- Core interactive elements of computer-based fiction
- Critical evaluation of interactive elements

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by completing a series of proformas or oral presentations for computer-based fiction sequences, critically evaluating all five core elements.

Candidate must identify and critically evaluate the use of at least two of the following core elements for each sequence:

- perspective (2d, isometric, first person, bird's eye etc),
- interface (goal, control, movement, object manipulation, help, dialog, inventory, hidden/invisible elements, control devices, feedback etc),
- story rhythm (key tasks, branching paths etc),
- puzzle/game types,
- game difficulty/diversity distribution

Assessment Guidelines

There should be a variety of genre and techniques for the chosen sequences, e.g. a 3d real-time strategy game, a children's multimedia storybook and a text-based adventure.

Higher National Unit specification: statement of standards (cont)

Unit title: Interactive fiction

Outcome 3

Develop an interactive computer-based fiction sequence to a given brief

Knowledge and/or skills

- Interpret a brief
- Create a development portfolio
- Identify interaction requirements
- Specify interaction elements
- Integrate core interaction elements into a working interactive computer-based fiction sequence
- Use software tools to create a sequence
- Write a production log
- Evaluate the sequence

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by creating a development portfolio containing:

- A proforma containing the interaction requirements for the interactive fiction sequence from the given brief
- A proforma specifying the interaction elements required for the sequence.
- A working sequence of at least 2 minutes (or equivalent) saved to CD-ROM or equivalent storage device. The sequence should integrate at least three of the following core elements:
 - perspective (2d, isometric, first person, bird's eye etc),
 - interface (goal, control, movement, object manipulation, help, dialog, inventory, hidden/invisible elements, control devices, feedback etc),
 - story rhythm (key tasks, branching paths etc),
 - puzzle/game type,
 - game difficulty/diversity distribution
- A production log detailing the production process (tasks, roles, progress)
- Supporting diagrams/charts/drawings and/or notes
- An evaluation of the completed sequence

Assessment Guidelines

The brief may be one successfully created by the completion of HN Unit, Narrative and Genre in Computer Games.

Higher National Unit specification: statement of standards (cont)

Unit title: Interactive fiction

Examples of suitable forms would be a text adventure sequence, a task in a real-time strategy game, a small “level” in a 3d first-person shooter, a story sequence in a role-playing game, or a short sequence from a multimedia storybook.

Administrative Information

Unit code: DE2X 35

Unit title: Interactive Fiction

Superclass category: CE

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Interactive fiction

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 primarily concerned with equipping candidates with an understanding of the core principles of interactivity in computer-based fiction. The emphasis is on analysing existing interaction elements and creating an interactive sequence. Candidates should examine a variety of interactive techniques. There should be a variety of genre and elements for the chosen systems, e.g. 3d real-time strategy games, a children's multimedia storybook and a text-based adventure.

Candidates should be able to complete the Unit using generally available software tools. There is no requirement to produce or evaluate fully completed games; only game/interactive fiction sequences are required, so demos may be used.

Centres should feel free to adapt the delivery of the unit to fit the specific requirements of their course structures.

Guidance on the delivery and assessment of this unit

This Unit is designed to introduce candidates to ways of analysing and creating interactive fiction sequences and, as such, candidates should have access to a wide range of computer systems and software development tools.

Candidates are additionally required to provide written or oral evidence that they have critically evaluated the range of core interactive concepts in a range of interactive fiction sequences. There should be a variety of genre and techniques used in the chosen sequences, e.g. 3d real-time strategy games, a children's multimedia storybook and a text-based adventure. The completed evidence should be in the form of proformas or oral presentations.

Candidates are additionally required to provide evidence of the creation of an interactive fiction sequence to a specified brief. The completed evidence should be a 2 minute (or equivalent) sequence clearly indicating the operation of the chosen interactive elements while adhering to the core concepts of interactivity in computer-based interactive fiction. Additionally, candidates should include supporting information in the form of proformas or a report identifying the user interaction requirements for the sequence and justification of the candidate's choice of interaction elements in the completed sequence.

Higher National Unit specification: support notes

Unit title: Interactive fiction

Open learning

This unit does not necessitate the student working within a group activity. Assessment is based on the accuracy of responses, and the appropriateness and coherence of the completed sequence. As such this unit can lend itself to delivery by open learning if delivered by means of a pre-defined design brief.

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Interactive fiction

This Unit is designed to enable you to gain an understanding of the key ideas in the design of interactivity in computer-based fiction and to create an interactive sequence based on those ideas.

You should learn about and be responsible for:

- Creating a working interactive fiction sequence
- Creating a portfolio of supporting material
- Evaluating your completed sequence

You will be assessed on:

- Your understanding of the core principles of interactivity in computer-based fiction
- Your critical evaluation of at least 3 interactive fiction sequences
- The standard of the sequence you create
- How well you justify your design decisions

On completion of the unit you should be able to:

1. Describe the core concepts of computer-based interactivity
2. Critically evaluate the interactive elements of computer-based fiction sequences
3. Develop an interactive computer-based fiction sequence to a brief

Higher National Unit Specification

General information for centres

Unit title: Multimedia Fundamentals

Unit code: DE2Y 34

Unit purpose: This Unit is intended to provide underpinning knowledge and skills to those who use multimedia technology in such areas as digital media, design and presentation.

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

1. Perform arithmetical operations required for digital media representations.
2. Determine file sizes and compression for multimedia element representations.
3. Use an Operating System to manipulate file systems.
4. Select backup strategies, describe data storage systems and transfer systems.
5. Transfer data and install software.

Credit value: 2 HN Credits at SCQF level 7: (16 SCOTCAT credit points at SCQF level 7*)

**SCOTCAT 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 SCOTCAT 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 should have some prior knowledge and skills in Computing/IT. Some arithmetical ability would be of benefit to candidates. This may be evidenced by the possession of relevant National Units, HN Units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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.

Higher National Unit Specification

General information for centres (cont)

Assessment: Outcome 1 will be in the form of 15 short response questions, using a sample of any 3 from 6 of the knowledge and/or skills elements, with five questions on each of the 3 chosen elements.

Outcome 2 will be in two parts, each part consisting of 10 restricted response questions on determining file sizes and compression respectively for multimedia element representations.

In Outcome 3 candidates will create a day book or journal containing accurate descriptions of the procedures required to perform practical tasks encompassing all of the knowledge and skills in the Outcome.

Outcome Four is assessed by performing a design exercise and producing either a report or presentation, at the discretion of the centre. If a report is chosen as the medium for collecting evidence then the size of the report must not be less than seven hundred and fifty words. If a presentation is chosen as the medium for collecting evidence then the size of the presentation must not be less than 12 screens.

Outcome Five consists of two parts. In the first part of the assessment for Outcome 5 candidates will create a day book or journal containing accurate descriptions of the procedures required to perform practical tasks encompassing all of the knowledge and skills in the Outcome. The second part of the assessment for Outcome 5 contains a short test using 20 restricted response questions in which candidates are required to answer questions on the function of software components, copyright issues with regard to software, and the threats posed to systems by software such as viruses, worms and Trojan Horses.

Higher National Unit specification: statement of standards

Unit title: Multimedia Fundamentals

Unit code: DE2Y 34

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

Perform arithmetical operations required for digital media representations.

Knowledge and/or skills

- Convert numbers between number bases used in digital media.
- Perform Logic Operations NOT, AND, OR and XOR.
- Convert colours into RGB representation.
- Convert colours into CMYK representation.
- Perform conversions using ASCII representation of characters.
- Perform conversions using modern character encodings.

Evidence Requirements

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

- Convert numbers between number bases used in digital media.
 - Candidates must be presented with five questions that require them to convert numbers between number bases used in digital media. (These are currently bases 2, 10 and 16) At least one question must address the process of converting base 10 numbers to base 16, and at least one question must address the process of converting base 16 to base 10.
 - In all cases intermediate working must be shown.
 - Numbers being converted must not fall out with the range 255_{10} and 65536_{10} (inclusive).
 - In order to be deemed successful candidates must perform at least three conversions correctly. (Exceptionally, candidates who make one 'slip of the pen' but demonstrate correct method may be given credit for one question only).
 - Calculators can be used, but only in one base (nominated by the candidate). Candidates using built in base conversion facilities on a calculator will be deemed to be unsuccessful.

Higher National Unit specification: statement of standards

Unit title: Multimedia Fundamentals

- If the assessment for this topic is conducted on-line, provision must be made to collect information on the method used to perform the conversion.
- Perform Logic Operations NOT, AND, OR and XOR.
 - Candidates must be presented with five questions that require them to perform Boolean logic operations. Each question may be posed as either a Boolean expression or a logic diagram using a standard logic gate notation. Centres can combine both presentation styles in a single assessment opportunity provided that each question represents a different Boolean expression.
 - Questions must be formulated in such a form as to specify the inputs to the system and require candidates to determine the output(s)
 - At least two questions must contain logic systems with more than one, but less than four operators (or gates).
 - In order to be deemed successful candidates must complete at least three questions correctly.
- Convert colours into RGB representation.
 - Candidates must be presented with five questions that require them to convert a description of a colour (in terms of the proportion of colours) into the corresponding hexadecimal RGB colour. For example, the amount of Blue in a colour could be described as 'half of the possible maximum intensity of Blue'.
 - In order to be deemed successful candidates must complete at least three questions correctly.
- Convert colours into CMY representation.
 - Candidates must be presented with five questions that require them to convert a description of a colour into its CMY representation. At least two of the questions must require candidates to convert a primary colour in the RGB colour space to its equivalent colour in the CMY colour space.
 - Responses should be in the form of C%: M%: Y%: notation.
 - In order to be deemed successful candidates must complete at least three questions correctly.
- Perform conversions using ASCII representation of characters.
 - Candidates must be presented with five questions that require them to convert characters to and from their ASCII representation. At least two conversions must be from ASCII to character, and at least two conversions must be from character to ASCII. Conversions can be performed using either seven or eight bit ASCII, but candidates must be provided with appropriate ASCII conversion charts.

Higher National Unit specification: statement of standards

Unit title: Multimedia Fundamentals

- In order to be deemed successful candidates must complete at least three questions correctly.
- Perform conversions using modern character encodings.
 - Candidates must be presented with five questions that require them to convert characters to and from a modern character encoding. At least two conversions must be from encoding to character, and at least two conversions must be from character to encoding.
 - At the time of writing a relevant character encoding is Unicode. As new encodings are adopted, assessment instruments should be revised to reflect these new encodings. For the sake of this outcome ASCII is not to be considered a modern character encoding.
 - Candidates must be provided with relevant sections of codings when attempting questions on this topic. Such sections must not contain less than 64 different encodings.
 - In order to be deemed successful candidates must complete at least three questions correctly.

The assessment must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour.

Candidates must answer 3 out of the 5 (60%) questions correctly in each of the three sampled/chosen elements in order to achieve a pass in this Outcome.

If candidates do not achieve a pass in any one, or all, of the 3 sampled elements, then they should be re-assessed only on the elements they did not succeed in. A different sample of elements should be presented for each assessment opportunity. Different values/scenarios should be used for each question within an assessment and for different assessment opportunities.

Assessment Guidelines

Where possible, questions should reflect real world situations to place the topic in context.

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

Outcome 2

Determine file sizes and compression for multimedia element representations.

Knowledge and/or skills

- Describe conversion between analogue and digital representations.
- Describe image and audio representation formats and bit depths.
- Describe AV representation formats.
- Calculate sizes of graphic and audio files.
- Estimate sizes of AV files.
- Calculate required data transfer rates / frame rates
- Describe compression of graphic, audio and AV files (ratios, quality and techniques)

Evidence requirements

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

In Part 1

Correctly answer at least 6 questions from 10 restricted response questions on representation formats, conversions and bit depths. These questions must contain at least two questions on the process of converting between analogue and digital representations.

The assessment for Part 1 of Outcome 2 must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour.

Candidates must answer 6 out of the 10 (60%) questions correctly in order to obtain a pass in this part of Outcome 2.

In Part 2

Correctly answer at least 6 questions from 10 restricted response questions on compression of graphic, audio and AV files. At least two questions must require candidates to calculate the compression ration obtained. The start and finish size for the file must be specified. At least two questions must require candidates to calculate the resultant file size when a file is compressed. The start size and the compression ratio must be specified.

The assessment for Part 2 of Outcome 2 must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour.

Candidates must answer 6 out of the 10 (60%) questions correctly in order to obtain a pass in this part of Outcome 2.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

Assessment Guidelines

The idea of the size/quality dichotomy should be introduced here, with candidates being encouraged to use different compression ratios on media files and note the quality changes caused. The idea of different resolutions for different media could also be introduced in this outcome. Where possible, questions should reflect real world situations to place the topic in context.

Outcome 3

Use an Operating System to manipulate file systems.

Knowledge and/or skills

- Starting up and safely shutting down systems.
- Starting and stopping applications.
- Navigating hierarchical file systems.
- Creating hierarchical file systems.
- Copying, moving and renaming files and folders.
- Examining and modifying file and folder permissions.
- Use of on-line help.

Evidence requirements

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

Create a day book or journal containing accurate descriptions of the procedures required to perform practical tasks encompassing all of the knowledge and skills in the Outcome. To be deemed successful, the candidate must create a daybook or journal containing accurate descriptions of the procedures required to perform practical tasks. If the same procedure is performed for multiple items, such as renaming files and folders then this need be documented once only. If a different procedure is required for multiple items, such as in a CLI requiring DEL for a file and RMDIR for a folder, then each variant must be documented. For security reasons personal passwords must **NOT** be included in this documentation.

The daybook/journal must contain sufficient detail to document candidate's abilities. For example when using a CLI the entry "Issued `cd mydirectory` to change directory" is deemed sufficient, whereas "Changed directory" is not acceptable. For a

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

GUI the entry “right clicked on file name and typed in new name” would be acceptable while the entry “changed filename” would be insufficient.

Candidates must be provided with pro-forma documents to clarify the format to be used when completing the daybook.

Assessment Guidelines

Candidates should be given a scenario-based task to allow the generation of evidence in as realistic a context as possible.

Outcome 4

Select backup strategies, describe data storage systems and transfer systems.

Knowledge and/or skills

- Describe on-line data storage.
- Describe off-line data storage.
- Describe backup strategies
- Select backup strategies
- Describe compression and archival solutions.
- Describe data transfer systems.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can select and document a backup strategy for a given scenario. The scenario must include requirements for an on-line back-up mechanism, an archival mechanism (for off-line storage) and a bulk data transfer system.

The documentation must include a description of the proposed backup strategy and the on-line, archival and bulk transfer mechanisms. The frequency of backup operations must be noted, with an explanation of why the specified frequency has been chosen. The documentation must also include a section describing the use of compression in the backup strategy, or justifying its omission. Storage arrangements

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

of backup media must be noted in the documentation. The technologies chosen must be devices in current use.

The evidence must be generated as either a formal report or as a presentation, at the discretion of the centre.

If a formal report is chosen as the medium for collecting evidence then the size of the report must not be less than seven hundred and fifty words.

If a presentation is chosen as the medium for collecting evidence then the size of the presentation must not be less than 12 screens.

To be deemed acceptable the backup strategy proposed by the candidate must be practicable and factually correct. (For example, a full backup every hour may be desirable and factually correct, it may not be practicable)

Assessment Guidelines

The bulk storage system chosen should be a device in current use. Magnetic disks are a current form of on-line storage. Archival options currently include CD-R(W) and writeable DVD solutions. Local bulk transfer options currently include USB (Universal Serial Bus) and FireWire (IEEE 1394) options. The wider area bulk transfer option currently is ftp (file transfer protocol). The use of off site storage or fireproof storage facilities are two current forms of media storage arrangements.

Outcome 5

Transfer data and install software

Knowledge and/or skills

- The function of device drivers.
- The function of anti-virus software.
- The function of utility software.
- The function of plugins.
- Locating and downloading device drivers.
- Locating and downloading utility software.
- Locating and downloading plugins.
- Locating and downloading anti-virus software.

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

- Installing and testing drivers.
- Installing and testing utility software.
- Installing and testing application packages.
- Copyright issues.
- Uninstalling software components.

Evidence requirements

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

In Part 1

- Locate and download a software component selected from the knowledge and/or skills list above.
- Install a software component selected from the knowledge and/or skills list above.
- Uninstall a software component selected from the knowledge and/or skills list above.
- Transfer (upload) a file to a remote server.

All processes must be documented in a day book. The completed day book must be presented as part of the portfolio of evidence for Outcome 5. The day book must provide a step-by-step account of the procedures followed in sufficient detail to allow repeatability. In particular, details of search strings used, sites/sources used, software tools used, version numbers and responses to system prompts must be noted. For example, it will not be sufficient to note 'downloaded product X'. A response of the form 'downloaded version W of product X from website Y' will be sufficient.

The file upload must be conducted using a suitable file transfer protocol. This must not be treated in the same manner as a simple file copy to a local server, but the techniques required for uploading to a remote server, including security/authentication requirements. (For example, uploading a web page to a web server) The client software used for this task must be noted in the documentation. For security reasons personal passwords must NOT be included in this documentation. It is not required that the same product/component be used for all of the tasks above. A different product/component must be selected for different assessment opportunities.

Candidates who have successfully completed a task need not be re-assessed on that task. (For example, if a candidate has successfully downloaded a software component no further components need to be downloaded).

Evidence for this part of Outcome 5 will take the form of an assessors' checklist covering all the knowledge and/or skills elements as appropriate.

Higher National Unit specification: statement of standards (cont)

Unit title: Multimedia Fundamentals

In Part 2

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

- Describe the function of software components, copyright issues with regard to software, and the threats posed to systems by software such as viruses, worms and Trojan Horses. (This category of software can be collectively referred to as malware).

This part the assessment for Outcome 5 will be in the form of 20 short response questions covering:

- i) Copyright issues.
- ii) Anti-virus (malware) software.
- iii) Utility software.
- iv) Device drivers.
- v) Plugins.
- vi) File transfer software.

Part 2 of the assessment for Outcome 5 must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour. Candidates must answer 12 out of the 20 (60%) questions correctly in order to obtain a pass in this part of Outcome 5.

Assessment Guidelines

Candidates should be presented with a realistic scenario to place the tasks in context.

Copyright issues may include the different licences under which software is provided, including commercial software, shareware, open source and copyleft.

Administrative Information

Unit code: DE2Y 34

Unit title: Multimedia Fundamentals

Superclass category: CD

Date of publication: November 2003

Version: 1

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Multimedia Fundamentals

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 for inclusion in the framework of Interactive Multimedia. As it provides underpinning knowledge for the area of new media, it is suggested that this Unit be delivered in the first year of an Interactive Multimedia HND or similar award.

Outcome 1

This Outcome concentrates on the representation of values of entities used in interactive multimedia. Candidates should be encouraged to practice conversions. At a minimum base sixteen (hexadecimal) should be covered, but other bases - especially base two (binary) should be introduced.

The idea of character encodings to encompass non-Latin alphabets should be introduced at this time, and candidates should be encouraged to research the various (and any emerging) solutions.

Outcome 2

The idea of the size/quality dichotomy should be introduced here, with candidates being encouraged to use different compression ratios on media files and note the quality changes caused. The idea of different resolutions for different media could have its first outing in this outcome.

Outcome 3

This Outcome introduces candidates to the basic day to day issues of manipulating files and folders. Candidates could be shown both CLI (Command Line Interpreter) and GUI (Graphical User Interface) techniques for performing these activities.

Where more than one operating system is available, candidates could be given 'compare and contrast' exercises to determine the similarities and differences between different systems. It is anticipated that candidates will need to be allowed time to practise skills for this outcome, in particular the procedures required for collecting evidence. Centres may find it useful to present candidates with exemplar documentation to clarify the documentation process.

Higher National Unit specification: support notes (cont)

Unit title: Multimedia Fundamentals

Outcome 4

For this outcome the various ways of storing data should be introduced. The coverage should emphasis current storage devices and formats, the historical background may provide extra context. Candidates should be encouraged to investigate past data storage techniques, but should be reminded of the dangers of media becoming unreadable, either through mechanical failure or obsolescence of reading devices. Cost/capacity factors should be introduced.

Current technologies:

Magnetic disks are a current form of on-line storage. Archival options currently include CD-R(W) and writeable DVD solutions. Local bulk transfer options currently include USB (Universal Serial Bus) and Firewire (IEEE 1394) options. The wider area bulk transfer option currently is ftp (file transfer protocol). Off site storage and fireproof storage facility are two current forms of media storage arrangements.

The crucial importance of disciplined backup regimes should be highlighted to candidates.

Outcome 5

Candidates should learn how to upload files using a suitable file transfer protocol. This should not be treated in the same manner as a simple file copy to a local server, but the techniques required for uploading to a remote server, including security/authentication requirements. (For example, loading a web page to a commercial server)

Some centres may have security issues when requiring candidates to install and un-install software, and may wish to set aside non-networked machines for this purpose.

It is anticipated that candidates will need to be allowed time to practise skills for this outcome, in particular the procedures required for collecting evidence. Centres may find it useful to present candidates with exemplar documentation to clarify the documentation process.

Copyright issues should include the different licences under which software is provided, including commercial software, shareware, open source and copyleft.

Higher National Unit specification: support notes (cont)

Unit title: Multimedia Fundamentals

Guidance on the delivery and assessment of this unit

The topics included in this Unit are related, but not in general to the extent of forcing a particular order of delivery. For example, Centres may wish to deliver the theory of file transfers before setting a practical task.

Outcome 1 will be in the form of 15 short response questions, using a sample of any 3 from 6 of the knowledge and/or skills elements, with five questions on each of the 3 chosen elements. The assessment must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour. Candidates must answer 3 out of the 5 (60%) questions correctly in each of the three sampled/chosen elements in order to achieve a pass in this Outcome. If candidates do not achieve a pass in any one, or all, of the 3 sampled elements, then they should be re-assessed only on the elements they did not succeed in. The re-assessment must use a different sample from the 6 knowledge and/or skills elements as appropriate.

Outcome 2 will be in the form of 2 sets of 10 restricted response questions on determining file sizes and compression respectively for multimedia element representations. Each part of this assessment must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour. Candidates must answer 6 out of the 10 (60%) questions correctly in each part of the assessment in order to obtain a pass in this outcome.

In **Outcome 3** candidates will create a day book or journal containing accurate descriptions of the procedures required to perform practical tasks encompassing all of the knowledge and skills in the Outcome.

Outcome Four is assessed by performing a design exercise and producing a report of approximately 500 words that documents the exercise.

Higher National Unit specification: support notes (cont)

Unit title: Multimedia Fundamentals

In **Outcome Five** candidates will create a day book or journal containing accurate descriptions of the procedures required to perform practical tasks encompassing all of the knowledge and skills in the Outcome. The evidence for the locate and download, install, uninstall and file transfer activities should be presented in the day book. Candidates should be presented with a realistic scenario to place the tasks in context. The candidate must provide sufficient detail to document the candidate's ability to perform the task.

In addition, Outcome 5 contains a short test using 20 restricted response questions in which candidates are required to answer questions on the function of software components, copyright issues with regard to software, and the threats posed to systems by software such as viruses, worms and Trojan Horses. This part of the assessment must be carried out in a supervised environment, will be closed book and is to be completed in 1 hour. Candidates must answer 12 out of the 20 (60%) questions correctly in order to obtain a pass in this outcome.

Some centres may have security issues when requiring candidates to install and uninstall software, and may wish to set aside non-networked machines for this purpose.

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Multimedia Fundamentals

This Unit is designed to provide you with the underpinning knowledge and skills necessary for multimedia technology in such areas as digital media, design and presentation. This Unit should provide you with the knowledge and skills required to perform a number of everyday activities when using computers and using computers to create Interactive Multimedia products.

Outcome 1

This Outcome aims to provide insight into how multimedia elements are represented internally in a device. For example, two of the different ways in which colours can be represented are introduced at this point. The ability to understand and convert numbers in different bases (especially hexadecimal) is important in such areas as setting the colour of a web page. In Outcome 1 you will be asked to provide answers to 15 short response questions on each of three required topics. You will need to answer 3 out of the 5 (60%) questions on each of the 3 topics correctly in order to obtain a pass in this Outcome.

Outcome 2

This Outcome goes more deeply into how some of the more important media types are represented. Upon completing this outcome you should have a firm grasp of how to use compression, and under which circumstances compression should be used. The assessment for Outcome 2 will be in two parts. In each of the two parts you will be asked to answer 10 restricted response questions on determining file sizes and compression respectively for multimedia element representations. You will need to answer 6 out of the 10 (60%) questions correctly for each of the two parts in order to obtain a pass in this Outcome

Outcome 3

The creation of Interactive Multimedia products will require the manipulation of files and folders. This outcome provides the skills and knowledge required to confidently manipulate files and folders in order to improve workflow. The assessment for this outcome takes the form of a practical exercise for which you must complete documentation about how you performed the task. The documentation will be in the form of a day book or journal containing accurate descriptions of the procedures required to perform the required practical tasks. The day book will form part of your portfolio of evidence for the Unit

Outcome 4

It may take a lot of hard work to produce an Interactive Multimedia product. It is distressing when that work is lost through either inadvertent deletion or media failure. This outcome should provide you with the knowledge and skills required to take steps to minimise the amount of work lost through accidents. The assessment for this Unit

General information for candidates (cont)

Unit title: Multimedia Fundamentals

requires you to design and document a backup strategy and to produce either a report of approximately 750 words or a presentation of no less than 12 screens that documents the exercise.

Outcome 5

New and upgraded software is released all of the time. This Outcome is concerned with the issues of finding, obtaining and installing new software components, what the purpose of these software components are and the legal implications of obtaining software. The threat posed by viruses is introduced, along with other 'hostile' software.

In Outcome Five you will be asked to create a day book or journal containing accurate descriptions of the procedures necessary to perform the required practical tasks. The day book will form part of your portfolio of evidence for the Unit. In addition, Outcome 5 contains a short test using 20 questions on the function of software components, copyright issues with regard to software, and the threats posed to systems by software such as viruses, worms and Trojan Horses. You will need to answer 12 out of the 20 (60%) questions correctly in order to obtain a pass in this part of Outcome 5.

Higher National Unit Specification

General information for centres

Unit title: Narrative and Genre in Computer Games

Unit code: DE30 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills to enable them to design and create a prototype game sequence with reference to the defining features and core concepts of narrative and genre in computer games.

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

1. Describe the core concepts and defining features of narrative and genre in computer games.
2. Critically analyse computer games in terms of narrative and genre.
3. Design a narrative sequence for a game in a specified genre.
4. Produce a prototype of a narrative sequence for a game in a specified genre.

Credit value: 2 HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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, but it would be beneficial if the candidate were to have experience of Media Studies, Press and Magazines or English and Communication at Intermediate 2 or above. It would also be beneficial if the candidate were to have previous experience of playing and/or studying computer games. This may be evidenced by the possession of relevant National Units, HN units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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: This unit should be assessed by means of:

- 1) Written or oral responses showing that the candidate can describe the core concepts and defining features of narrative and genre in computer games.
- 2) Written or oral responses showing that the candidate can analyse 3 computer game sequences with regard to the core concepts and defining features of narrative and genre in computer games.
- 3) Creation of a prototype computer games sequence from a design brief, including proformas detailing the considerations of narrative and genre for the sequence.

Where this unit is offered as part of an integrated course of work, the evidence requirements can be contained within other coursework documentation. However, clear guidelines must be issued to candidates as to the evidence requirements for this Unit within the overall project assessment requirements.

Higher National Unit specification: statement of standards

Unit title: Narrative and Genre in Computer Games

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

Describe the core concepts and defining features of narrative and genre in computer games

Knowledge and/or skills

- Core concepts and defining features of narrative in computer games
- Core concepts and defining features of genre in computer games

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can describe the core concepts and defining features of narrative and genre in computer games by producing a report of approximately 750 words for each of these two categories.

The evidence will be written or oral.

Each candidate must correctly:

- Describe in detail the core concepts and defining features of narrative in computer games, i.e. narrative structure, interactivity, player viewpoint, character, multi-threaded plotting, synchronous/asynchronous narrative, non-player characters, scripted sequences, back-story, re-playability, exploration, actors, artificial intelligence, real-world physics, interface, single/multi-player conventions.
- Describe in detail the core concepts and defining features of genre in computer games, i.e. genre type (shooters, racing, platform, beat-'em-up, god games, real-time strategy, management, sports, role playing game, puzzle); setting, sound, music, viewpoint, characters, narrative elements.

Assessment Guidelines

The assessment could be carried out by structured questions to guide the production of two pieces of extended writing in the form of a report with appropriate headings.

Higher National Unit specification: statement of standards (cont)

Unit title: Narrative and Genre in Computer Games

Outcome 2

Critically analyse and evaluate computer games in terms of narrative and genre

Knowledge and/or skills

- Critical analysis and evaluation of computer games in terms of narrative
- Critical analysis and evaluation of computer games in terms of genre

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can critically analyse and evaluate the narrative and genre features of at least 3 different computer game sequences with respect to the core concepts and features identified in Outcome 1.

The evidence will be written or oral.

Each candidate must correctly:

- Identify the narrative techniques used in each sequence, giving evidence in support
- Analyse the defining narrative features of each sequence and explain their appropriateness
- Evaluate the effectiveness of these features in relation to the narrative, for each sequence
- Identify the genre of each sequence, giving evidence in support
- Analyse the defining features of each sequence and explain their appropriateness to that genre
- Evaluate the effectiveness of these features in relation to the genre, for each sequence

Candidates must critically analyse and evaluate at least 3 different narrative sequences; each sequence should be from a different genre.

Assessment Guidelines

The assessment could be carried out by structured questions to guide the production of a number of pieces of extended writing in the form of a report with appropriate headings.

Higher National Unit specification: statement of standards (cont)

Unit title: Narrative and Genre in Computer Games

Outcome 3

Design a narrative sequence for a computer game in a specified genre

Knowledge and/or skills

- Create a brief for a narrative sequence in a specified genre
- Identify the narrative requirements for a sequence
- Identify the defining features of genre for a sequence

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills in designing a narrative sequence in a specified genre by submitting a brief for a sequence.

The candidate must produce a detailed brief in which:

- The defining features of a computer game genre are identified
- The implementation of the defining features of a computer game genre is explained
- The defining features of a narrative sequence are identified
- The implementation of the defining features of a narrative sequence is explained.

Evidence for the knowledge and/or skills in this Outcome must be presented in the form of a written brief or oral presentation of no less than 300 words to indicate how the candidate has considered appropriately the core concepts and defining features of narrative and genre when designing the computer game sequence.

It is anticipated that the sequence should be of the order of 2 minutes in duration.

Assessment Guidelines

The assessment of this Outcome could be combined with Outcome 4 by using a project that covers both Outcomes. If the Outcome is assessed in isolation it should be based on the candidate's completed brief.

Higher National Unit specification: statement of standards (cont)

Unit title: Narrative and Genre in Computer Games

Outcome 4

Produce a prototype of a narrative sequence for a game in a specified genre

Knowledge and/or skills

- Interpret a brief
- Plan a narrative sequence
- Use the features and conventions of the genre
- Create a portfolio of supporting documentation
- Evaluate the prototype

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills in producing a prototype of a narrative sequence in a specified genre from a given brief by creating a portfolio of work.

The candidate must:

- Produce a paper- or multimedia-based prototype of a narrative sequence for a game in a specified genre
- List an inventory of proposed media content for their sequence, identifying where and how each would be used
- Include supporting sketches and/or planning notes and diagrams
- Produce a detailed evaluation of not less than 300 words of how the completed prototype matches the requirements of the brief
- Collect this evidence into a portfolio for submission.

Assessment Guidelines

The prototype is not required to be a completed game sequence, but should at least show the outline of a narrative sequence in a particular genre. The candidate may be encouraged to present this information in the form of a flow chart, storyboard or multimedia presentation.

The portfolio should clearly show the candidate's development of the prototype, from interpretation of the brief through to evaluation of the prototype. Completed proformas may be used to supply the content inventory and the evaluation.

The assessment of this Outcome could be combined with Outcome 3 by using a project that covers both Outcomes. If the Outcome is assessed in isolation it should be based on the portfolio created by the Candidate.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Administrative Information

Unit code: DE30 35

Unit title: Narrative and Genre in Computer Games

Superclass category: CE

Date of publication: November 2003

Version: 1

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Narrative and Genre in Computer Games

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 primarily concerned with equipping candidates with an understanding of the core concepts and defining features of narrative and genre in computer games. The emphasis should be on analysing existing game sequences and creating a prototype game sequence. Because of the length of some computer games, it is recommended that game sequences should be utilised rather than entire games.

Candidates should be able to complete the Unit using basic presentation tools. There is no requirement to produce a completed computer game sequence. The emphasis of the Unit should be on achieving a broad knowledge of the features of, and an understanding of a limited range of core concepts of narrative and genre in computer games.

Centres should feel free to adapt the delivery of the unit to fit the specific requirements of their course structures.

Guidance on the delivery and assessment of this unit

This unit is designed to introduce candidates to ways of analysing and understanding computer games they may not have considered and, as such, candidates should have access to a wide range of computer game genres and narrative sequences.

Candidates are additionally required to provide evidence of the design and prototype of a computer game sequence in a particular genre. It is advised that the sequence should be approximately 2 minutes long, were it to be included in a computer game.

Higher National Unit specification: support notes (cont)

Unit title: Narrative and Genre in Computer Games

Open learning

This unit does not necessitate the candidates working within a group activity. Assessment is based on the accuracy of responses, and the appropriateness and coherence of the design proformas and the prototype. As such this unit can lend itself to delivery by open learning if delivered by means of a pre-defined set of game sequences and design brief.

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Narrative and genre in computer games

This Unit is designed to enable you to understand the key ideas in the areas of narrative and genre of computer games and to design and create a prototype games sequence based on those ideas.

You should learn about and be responsible for:

- Designing a short narrative sequence in a computer game genre.
- Creating a prototype of the sequence you design.
- Creating a portfolio of supporting documentation
- Evaluating the prototype

You will be assessed on:

- Your understanding of the core concepts and defining features of narrative and genre in computer games
- Your critical evaluation of 3 computer game sequences in terms of narrative and genre
- The standard of the narrative sequence you design.
- The standard of the prototype sequence.
- The standard of your supporting portfolio
- The standard of your evaluation of the prototype.

On completion of the unit you should be able to:

- 1) Describe the core concepts and defining features of narrative and genre in computer games
- 2) Critically analyse computer games in terms of narrative and genre
- 3) Design a narrative sequence for a computer game in a specified genre
- 4) Produce a prototype of a narrative sequence for a game in a specified genre

Higher National Unit Specification

General information for centres

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Unit code: DE31 34

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills required to convert a multimedia application from one distribution medium to another. This includes examination of the media elements included in the application, consideration of Intellectual Property Rights and the processes required. One example of such a conversion is that of converting a CD-ROM application to a World Wide Web site. Candidates should examine an existing multimedia application for suitability for conversion to delivery by another mechanism and carry out the processes required. These processes include: redesign, and conversion of media elements.

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

1. Conduct research into a broad range of multimedia applications in current creative and interactive digital practice.
2. Select and assess an existing multimedia application.
3. Convert multimedia elements for re-purposing.
4. Construct and test a re-purposed multimedia application.

Credit value: 1 HN Credit at SCQF level 7: (8 SCOTCAT credit points at SCQF level 7*)

**SCOTCAT 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 SCOTCAT 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. However, it is recommended that candidates should have some prior knowledge and skills in multimedia applications. This may be evidenced by the possession of relevant National Units, HN Units or experience. It is strongly recommended that candidates have previously completed or are concurrently undertaking the HN Unit, D75W 34, Multimedia: Developing Multimedia Applications or an equivalent Unit.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

General information for centres (cont)

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: Outcome 1 requires candidates to produce a portfolio of short reports on multimedia products. In Outcome 2 candidates will document a feasibility study. Outcome 3 is a practical outcome with candidates using software tools to convert media elements to the required formats. Outcome 4 requires candidates to construct the repurposed application using the components converted for Outcome Three.

Assessment for this Unit is most usefully undertaken as a project as the four outcomes contain the stages required for the completion of the project

Higher National Unit specification: statement of standards

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Unit code: DE31 34

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

Conduct research into a broad range of multimedia applications in current creative and interactive digital practice.

Knowledge and/or skills

- Identify types of multimedia product.
- Identify intended audience of a multimedia product.
- Identify media components used within a product.
- Evaluate effectiveness of included media components.
- Evaluate effectiveness of multimedia product.
-

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can submit a portfolio of evidence of individual research of not less than five pieces of multimedia used in current creative and interactive digital practice. None of the pieces may be more than five years old. At least one piece must be a reference work, at least one must be entertainment related, at least one must be currently delivered by a remote mechanism (such as Web based) and at least one must be a locally delivered mechanism (such as a CD-ROM). At least two products should contain interactive elements.

For each piece of multimedia product considered, the candidate should produce a short commentary stating the:

- Source of the product (publisher, Web address etc.)
- Type of multimedia product.
- Intended audience of the piece.
- Media elements used (number and type).
- Effectiveness of use of media elements
- Effectiveness of multimedia application.
- Effectiveness of interactive elements (where appropriate).

Higher National Unit specification: statement of standards (cont)

Unit title: Researching Multimedia Applications for Practical Re-Delivery

The discussion of each piece of multimedia must not be less than two hundred words and will not exceed three hundred words. Therefore, the completed report must be between 1000 and 1500 words in length.

Assessment Guidelines

Candidates will probably benefit from the provision of a pro-forma for each of the documents required.

A broad range of multimedia products exist and should be considered, such as kiosk, advertisement, promotional, educational, recreational and reference.

Outcome 2

Select and assess an existing multimedia application.

Knowledge and/or skills

- Select a suitable project to re-purpose
- Determine the media element space/bandwidth requirements of current application.
- Determine the quality requirements of current application.
- Reverse engineer the design of the existing multimedia application.
- Observe Copyright / Intellectual Property Rights attached to the existing application.
- Determine media element quality requirements of the re-deployed application.
- Determine media element space/bandwidth requirements of the re-deployed application
- Identify Software tools for media conversion

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can undertake a feasibility study to ensure that a multimedia product can be repurposed to a different delivery medium. Evidence must be presented as a document (either paper based or electronic) that includes at least the following information:

- Source multimedia application:
 - Author / date of creation.
 - Copyright status of application. If the copyright lies with a third party, written permission to use the work must be obtained and included.
 - List of media assets, describing type, size and ownership.
 - Diagram/other design representation of paths through application.

Higher National Unit specification: statement of standards (cont)

Unit title: Researching Multimedia Applications for Practical Re-Delivery

- Target multimedia application
 - Asset sheets for each of the required media assets, describing type, estimated size after conversion and software tool/tools required to perform the conversion. Version numbers of software tools used must be noted.

The document must confirm, on the basis of the information contained in the document, that the conversion is possible from:

- A media element perspective. (For example, quality requirements are met)
- From a technical perspective. (For example, software is available to perform the required conversions.)
- The legal perspective. (For example, copyright requirements are observed)

In exceptional circumstances, if one required asset cannot be converted satisfactorily, candidates can recreate a new version of the asset. If this option is chosen it must be documented, including a justification of the decision and the size and quality of the new asset. Software used to create the new asset must be noted. Legal requirements must be observed in the creation of the new asset.

If asset management software is available this must be used to hold the required asset information. In the absence of dedicated asset management software other software could be used, such as a spreadsheet or database package.

The application to be re-purposed must be given to candidates, along with a brief detailing at least the medium to be used for the re-targeting.

It is assumed that a CD-ROM multimedia product is to be re-purposed as a Web site (or vice versa) but as long as two different media are used, with different space/bandwidth and quality requirements this will be satisfactory.

Unless significant changes are made, repurposing from one medium to another closely allied medium will not be sufficient. For example, re-targeting a CD-ROM based multimedia application to DVD will not be regarded as appropriate.

Assessment Guidelines

If using a software solution to track assets, it may be prudent to ensure that sufficient fields are provided to meet the requirements of both Outcome 2 and Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Outcome 3

Convert multimedia elements for re-purposing.

Knowledge and/or skills

- Select tools to convert multimedia elements.
- Use tools to convert multimedia elements.
- Selection of file formats / compression.
- Document converted assets.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can convert all of the multimedia assets required into a form suitable for the re-purposed application. The assets should be submitted in a machine-readable format.

Multimedia assets must include at least one example of a graphic, a video clip an audio clip, and where appropriate, an animation. Each converted asset must be documented with an asset sheet containing at least the following information:

- Source of original.
- Date of conversion.
- Size of original.
- Quality of original
- File format of original
- Name of person performing conversion
- Size of asset after conversion
- Quality of asset after conversion
- File format after conversion
- Tool(s) used to perform conversion

Assessment Guidelines

Candidates should be encouraged to document each asset as soon as it is discovered.

It is assumed that the output from a previous Outcome will be used as the input for this Outcome. If another approach is used, then the level of detail supplied should be at least equivalent to that produced for Outcome 1. Where it is impractical or impossible to directly convert one multimedia asset using available tools, it would be appropriate for the candidate to re-build the multimedia asset using appropriate tools –

Higher National Unit specification: statement of standards (cont)

Unit title: Researching Multimedia Applications for Practical Re-Delivery

for example, an animation developed in a proprietary format that cannot be converted using available tools. If using a software solution to track assets, it may be prudent to ensure that sufficient fields are provided to meet the requirements of both Outcome 2 and Outcome 3.

Outcome 4

Construct and test a re-purposed multimedia application

Knowledge and/or skills

- Redesign application for target medium.
- Implement and document application for target medium.
- Test re-purposed multimedia application.
- Document testing of re-purposed multimedia application.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can design, implement, test and document a re-purposed application.

Submission should be in the form of a document containing the following sections

- Design (including such items as flow charts, storyboards and mood boards) This design must be matched against the design derived from the original application, and differences noted.
- Design of testing strategy, including tests for all major paths. The design of the testing strategy should include details of the policy to be used for testing, e.g. incremental testing. (It may not be practicable to produce a full coverage test plan, but it is anticipated that at least thirty tests should appear in the test plan)
- Results of testing, based on the test plan.
- Remedial work undertaken as a result of defects found during testing.
- It is anticipated that faults will be detected during testing. A submission that does not admit to having defects removed at some stage in the development process will be deemed unsatisfactory.
- Confirmation of defect removal should be presented in the form of a re-test.

The application that has formed the basis for this repurposing exercise must be available for comparison.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Assessment Guidelines

It is anticipated that the input for Outcome 4 will be produced from previous Outcomes, but under exceptional circumstances a brief may be substituted if it covers all of the material that would normally be produced by the previous outcomes.

Administrative Information

Unit code: DE31 34

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Superclass category: CB

Date of publication: November 2003

Version:

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Researching Multimedia Applications for Practical Re-Delivery

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 40 hours.

Guidance on the content and context for this Unit

This Unit is designed for inclusion in the framework of Interactive Multimedia, but may find use in other frameworks. As the Unit requires an existing multimedia product as input it is strongly advised that candidates have already completed or are concurrently undertaking the HN Unit, Multimedia: Developing Multimedia Applications, (D75W 34) or an equivalent Unit.

Guidance on the delivery and assessment of this unit

Outcome 1

This Outcome requires candidates to research the range of multimedia products in terms of both the target audience, the type of product and the use of multimedia. The evaluation portions of this Outcome are, and must be, to an extent subjective and candidates should be exposed to a tutor led session where some products are discussed in these terms. The idea of being inspired by the work of others could be inculcated here, but the concept of copyright and infringement should also be included in the discussion. At this level it may be a challenge for candidates to express opinions on subjective matters, and they should be encouraged to do so. Although the issues raised in this Outcome have implications for the other topics in the Unit, delivery of the Outcome need not be the first topic delivered in the Unit and centres may find it useful to run this Outcome in parallel with the other 3 Outcomes.

Outcome 2

This Outcome requires candidates to make a judgment based on a set of criteria, most of which are objective. Candidates should be introduced to the different media components that may appear in a multimedia product, and why that component is presented in that particular format. (Such issues as download speed, quality and size could be raised here). The software tools that can be used to perform format conversion could be introduced here, along with their capabilities and limitations. As an example, the differences between vector and raster graphics could be discussed here (if not already introduced in a different Unit) and the limitations of software in converting between raster and vector formats could be discussed. The problems in enlarging small/low resolution images could also be raised here. Although not strictly required until Outcome 3, candidates may benefit from exposure to the software tools.

Higher National Unit specification: support notes

Unit title: Researching Multimedia Applications for Practical Re-Delivery

Outcome 3

This Outcome requires candidates to perform the conversions. As such candidates will need to be proficient (practiced) in the use of the software. Centres should have a range of software to hand to allow candidates to investigate the different approaches taken by the vendors. It may be useful to compare the facilities provided by high end software with the facilities provided by free or public domain software.

Outcome 4

Apart from ensuring that the centre has appropriate authoring software for the intended application little guidance should be needed. Emphasis on working in an orderly manner should be made.

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Researching Multimedia Applications for Practical Re-Delivery

This Unit is designed to provide you with the knowledge and skills required to convert a multimedia application from one distribution medium to another. This involves examination of the media elements included in the application, consideration of Intellectual Property Rights and the processes required. Therefore, this Unit is about transforming a multimedia product so that it can be re-used in different circumstances.

Outcome One is intended to introduce to you to the broad range of multimedia products that are available, asking you to look at a selection of multimedia products and discussing the main features. You will be asked to give your opinion on the multimedia products that you have investigated. In particular you will be asked to discuss the effectiveness of the piece, from the point of view of the components and the product itself (it may be that a product has some very good components and some poor components – how does this affect the overall impression?)

Outcome Two involves the preparatory work for re-purposing, and is effectively a feasibility study where you have to decide if a multimedia product can be successfully converted. In order to do this you will have to examine all of the components in turn to ensure that the conversion can be made. There are a couple of factors to be considered, including the size and quality implications of the conversion. The issue of copyright must also be considered.

Outcome Three requires you to perform the conversion processes for all of the identified media elements. This will mean that you will have to work with a number of different pieces of software to convert the different media elements. You will be asked to record the conversion processes as you do them.

Outcome Four is where the converted components are built up to form the repurposed application. You will be asked to build the application, develop a plan of how the new product will be tested and perform the testing process to confirm that the product works as advertised. As part of the testing process you will find defects in the product (this is almost inevitable). You will be asked to remedy these defects and document the process of repairing them.

Higher National Unit Specification

General information for centres

Unit title: Scripting for Interactivity

Unit code: DE32 35

Unit purpose: This Unit is designed to develop candidates' skills in designing and developing interactive multimedia applications using the scripting elements of a multimedia authoring tool.

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

1. Select a multimedia authoring tool for a script driven application.
2. Develop a system specification and detailed design for a script-driven multimedia application.
3. Use the scripting facilities of a multimedia authoring tool to implement interactivity
4. Test the completed product.

Credit value: 2 HN Credits at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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. However, it is recommended that candidates should have some prior knowledge and skills in multimedia authoring packages. This may be evidenced by the possession of relevant National Units, HN units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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)

Unit title: Scripting for Interactivity

Unit code: DE32 35

Assessment:

Outcome One is assessed by the production of a presentation.

Outcome Two is assessed by the production of a design document.

Outcome Three is assessed by the implementation of a system.

Outcome Four is assessed by the creation of a test plan, and using the test plan to test a system.

Higher National Unit specification: statement of standards

Unit title: Scripting for Interactivity

Unit code: DE32 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

Select a multimedia authoring tool for a script driven application.

Knowledge and/or skills

- Identifying the features of multimedia authoring tools
- Selecting multimedia authoring tools
- Uses for scripting in multimedia authoring

Evidence Requirements

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

- Describe the selection of multimedia authoring tools. This description should include information on the features of multimedia authoring tools and how scripting facilities can be used to enhance interactive multimedia. The evidence must be presented in a format suitable for archiving, such as an electronic presentation, or video. The presentation must describe the selection of a multimedia tool on the basis of comparing the features of at least two competing products. One part of the feature set compared must be the scripting facilities offered by the product, with examples of how the scripting features could be used in Interactive Multimedia.

Assessment Guidelines

The assessment should be conducted as the construction of a presentation.

Higher National Unit specification: statement of standards (cont)

Unit title: Scripting for Interactivity

Outcome 2

Develop a system specification and detailed design for a script-driven multimedia application.

Knowledge and/or skills

- Identification of functional requirements.
- Identification of inputs /outputs and processes.
- Specification of the user interface, events and interaction elements.
- Definition of the properties of multimedia and interface elements.
- Developing storyboards.
- Developing pseudocode for scripted elements.

Evidence requirements

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

Design a solution for a problem contained in a given brief. The design documentation should contain at least the following items:

- A functional requirement
- Identification of inputs and outputs
- User Interface design, including events recognised by the system and interaction elements.
- A storyboard.
- Pseudocode for the scripted elements.

Assessment Guidelines

It is recommended that this Outcome is completed before attempting the implementation activities in Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: Scripting for Interactivity

Outcome 3

Use the scripting facilities of a multimedia authoring tool to implement interactivity.

Knowledge and/or skills

- Associate appropriate events with multimedia and interface elements
- Assign appropriate properties to multimedia and interface elements
- Develop scripts to manipulate multimedia elements and enhance interactivity
- Apply control structures in the production of scripts – sequence, selection, iteration

Evidence requirements

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

- Develop a scripted solution to the design constructed for Outcome 2.
 - The system must contain an example of at least three multimedia elements (selected from text, still graphics, animation, video and sound).
 - There must be at least three different interaction elements (selected from such items as buttons, sliders, drop down/pop up menus and text input).
 - The solution must contain examples of sequence, selection and iteration constructs, and should be internally documented. The solution must be demonstrated to show that it does not contain significant errors.

A candidate may be deemed successful even if minor errors are present in the system. A system containing major flaws must not be accepted.

Assessment Guidelines

It is recommended that this Outcome is completed before the formal test documentation activities for Outcome 4 is started. Informal/unit testing should be undertaken as a matter of course.

Higher National Unit specification: statement of standards (cont)

Unit title: Scripting for Interactivity

Outcome 4

Test the completed product

Knowledge and/or skills

- Prepare a test strategy
- Select and record test data
- Record test results
- Evaluate test results and recommend amendments to script elements as appropriate

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can produce and document a test strategy for a system. The test strategy must be based on the specification for a system. The documentation must contain at least the following sections:

- A test strategy.
- Test data.
- The results of performing the tests specified in the test data section.
- An evaluation of the test results.

The test data section must contain sufficient test items to give confidence that the system largely conforms to the specification.

Assessment Guidelines

The methodology used to develop the test strategy should be based on current techniques, and should be appropriate for the nature of the system being tested.

Administrative Information

Unit code: DE32 35

Unit title: Scripting for Interactivity

Superclass category: CD

Date of publication: November 2003

Version: 1

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: Scripting for Interactivity

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 has been developed to form part of the programming cluster option of the HND Interactive Multimedia. It is anticipated that the unit would be delivered in the second year of such an award if traditional delivery schedules are being observed.

Guidance on the assessment and delivery of this unit

Outcome 1

This provides an opportunity to introduce the concept of scripting Interactive Multimedia products. Candidates should be encouraged to investigate current development tools as part of the process. Centres may wish to frame the assessment as a research exercise. It should be possible to compare two products from the same manufacturer

The remaining three Outcomes may be treated as a traditional development process, with candidates given a brief to design, implement and test. Centres may wish to give different scenarios for each of the outcomes, and if this approach is taken, the order in which the outcomes are addressed may be adjusted from the order given here.

Outcome 2

Design in this context is used in the traditional software development context, rather than graphic design - candidates should be made aware of this terminology. The process could be described as a problem solving exercise, with the documentation describing the solution and how the solution has been developed.

Traditional software design methodologies could be introduced at this point, but given a light treatment.

Candidates should be encouraged to view this phase of development as a 'low stakes' exercise. It may be beneficial for centres to review the progress made by candidates as they practice.

Higher National Unit specification: support notes (cont)

Unit title: Scripting for Interactivity

Outcome 3

There is a large body of literature on the implementation process. Candidates should be directed to some of this material so that the methods used by practitioners can be observed.

Outcome 4

It is suggested that candidates are introduced to at least the concepts of white/glass box testing, black box testing, incremental testing, top down testing and bottom up testing. It may also be beneficial to discuss the concept of stress testing, especially in the context of multiple users sharing a server to run scripted applications.

Open learning

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: Scripting for Interactivity

Modern multimedia packages offer a wide range of facilities, but there are times when the built in features do not support a particular effect or activity. This Unit introduces you to the scripting facilities provided by the multimedia packages in order to extend their range. These scripts (effectively small programs) are particularly useful when implementing systems that require interactivity.

For Outcome 1 you will study the scripting facilities provided by packages in order to be able to select the most appropriate package to develop a system. The assessment for this outcome is a presentation detailing your findings.

Outcome 2 addresses the design issues surrounding the development of a system. The assessment for this outcome is to construct a design document for an interactive multimedia product that requires scripting to be utilised.

Outcome 3 covers the implementation phase of a system. For this outcome you will be required to actually build the system, including the interface elements, and multimedia elements that are to be included and the scripts that control the behaviour of the system.

The final outcome of this Unit covers the testing phase of product development. You will be required to develop a testing strategy, and then perform the tests to ensure that the system does not contain flaws.

Higher National Unit Specification

General information for centres

Unit title: User Interface Development

Unit code: DE34 34

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills to enable them to design and create a prototype user interface to a multimedia product.

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

1. Describe the core concepts of User Interface design.
2. Critically evaluate the user interfaces of computer systems.
3. Develop a prototype user interface for a system.

Credit value: 1 HN Credit at SCQF level 7: (7 SCQF credit points at SCQF level 7*)

**SCOTCAT 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 SCOTCAT 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. However, it is recommended that candidates should have some prior knowledge and skills in Computing/IT. This may be evidenced by the possession of relevant National Units, HN units or experience.

Core skills: There may be opportunities to gather evidence towards core skills 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: This unit will be assessed by 3 separate assessments, as follows:

- Written or oral responses showing that the candidate can describe the core concepts of User Interface design.
- Written responses showing that the candidate can critically evaluate the user interfaces of 3 different computer systems
- A prototype of a user interface for a system, including supporting documentation explaining how the user interface is expected to function.

Higher National Unit specification: statement of standards

Unit title: User Interface Development

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

Describe the core concepts of User Interface design

Knowledge and/or skills

- Users' needs
- User interaction elements
- User interfacing devices & technology

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can, in approximately 600 words (or oral equivalent), provide an accurate and clear explanation of the three core concepts of User Interface design as listed above.

Candidate's responses can be judged to be satisfactory where the evidence provided is sufficient to meet the requirements for each core concept by showing that the candidate is able to:

- Identify the importance of considering the needs of the user when creating an interface, with explanation of the differing needs of three categories of user, e.g. older adults, children and disabled users.
- Identify at least 6 user interaction elements (i.e. text, still images, animation, colour, sound, video) and explain the considerations for their effective use in a user interface
- Identify at least 4 user interfacing devices or technology and explain in detail how at least one of these has made a significant contribution to the area of User Interface design.

Assessment Guidelines

The principal intention of this assessment is to demonstrate that the candidate has a clear understanding of the core concepts of user interface design. Consequently candidates should be encouraged to address the most widely used methodologies and technologies and not rely solely on the latest technological breakthroughs.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards

Unit title: User Interface Development

Outcome 2

Critically evaluate the user interfaces of computer systems

Knowledge and/or skills

- User interfaces of computer systems
- Use of media elements in the user interfaces of computer systems
- The accessibility of user interfaces of computer systems
- Creating routine tools for evaluation of user interfaces
- Relevant Health and Safety legislation

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can create routine tools for evaluation of user interfaces.

Candidate's responses can be judged to be satisfactory where the evidence provided is sufficient to show that the candidates are able to:

- Create a proforma or questionnaire that can be used successfully to collect information on:
 - The needs of the target interface's user
 - The implementation of media elements in the target interface
 - The implementation of accessibility issues for the target interface in line with relevant current Health & Safety regulations

Additionally, candidates will need evidence to show that they can critically evaluate the media elements, accessibility and overall usability of 3 different user interfaces.

Candidate's responses to this part of Outcome 2 can be judged to be satisfactory where the evidence provided is sufficient to show that candidates are able to:

- Critically evaluate the use of at least 3 media elements (i.e. text, still images, animation, colour, sound, video) for **each** of the 3 user interfaces
- Critically evaluate the use of accessibility for one user with a disability (e.g. vision impaired, hearing impaired, impaired motor functions etc.) for **each** of the 3 user interfaces
- Critically evaluate the overall usability of each interface for its target user(s)

Evidence for the knowledge and/or skills in this Outcome must be generated by means of the completed use of the evaluation tools created by candidates.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: User Interface Development

Assessment Guidelines

Candidates should critically evaluate the user interfaces of at least 3 different computer-based systems using tools of their own devising. There should be a variety of purpose and user for the chosen systems, e.g. a computer operating system, a children's multimedia presentation, or a job centre web page.

Outcome 3

Develop a prototype user interface for a system

Knowledge and/or skills

- Identifying user requirements
- Specifying & justifying media elements
- Specifying & justifying user interaction elements
- Specifying & justifying accessibility requirements
- Conforming to current Health & Safety legislation

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can present in the form of a paper- or multimedia presentation a prototype user interface for a system to a given brief. An example of suitable forms would be a series of storyboards and mood boards or another appropriate presentation system.

The brief should consist of a description of the purpose and intended users of a computer-based system. Candidates must also include the following supporting information:

- identifying the user requirements
- specifying media elements to be used
- explaining the choice of media elements in relation to the user and system requirements
- specifying user interaction elements to be used
- explaining the choice of user interaction elements in relation to the user requirements
- specifying accessibility elements to be used

Higher National Unit specification: statement of standards (cont)

Unit title: User Interface Development

- explaining the choice of accessibility elements in relation to relevant current Health & Safety legislation

The supporting information must take the form of annotations to the prototype, or the completed proformas, or the oral equivalent.

Assessment Guidelines

The prototype is not required to be a completed publishable user interface, but should indicate the design and operation of the user interface.

Administrative Information

Unit code: DE34 34

Unit title: User Interface Development

Superclass category: CB

Date of publication: November 2003

Version: 1

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: User Interface Development

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 40 hours.

Guidance on the content and context for this Unit

This Unit is designed to provide candidates with the knowledge and skills to enable them to design and create a prototype user interface to a multimedia product. Therefore, this Unit is primarily concerned with equipping candidates with an understanding of the core principles of User Interface design. The emphasis should be on analysing existing user interfaces and creating a prototype user interface. Candidates should examine a variety of computer systems. There should be a variety of purpose and user for the chosen systems, e.g. a computer operating system, a multimedia presentation, web pages, games, application software. Candidates should be able to complete the unit using basic presentation tools. There is no requirement to produce a completed user interface. The emphasis of the Unit should be on achieving a broad knowledge of the features of, and an understanding of a limited range of core principles of User Interface design.

Centres should feel free to adapt the delivery of the unit to fit the specific requirements of their course structures.

Guidance on the assessment and delivery of this unit

This unit is designed to introduce candidates to ways of analysing and creating user interfaces and, as such, candidates should have access to a wide range of computer systems and interfaces. In Outcome 1 candidates are required to provide written or oral evidence describing the core concepts of User Interface design. The completed evidence should be not less than 600 words (or oral equivalent).

In Outcome 2 candidates are required to provide written or oral evidence that they have created routine tools and used them to critically evaluate the user interfaces of at least 3 different computer systems. There should be a variety of purpose and user for the chosen systems, e.g. a computer operating system, a multimedia presentation, and a web page. The completed evidence should be in the form of proformas or questionnaires.

In Outcome 3 candidates are required to provide evidence of the design and prototype of a user interface for a system to a specified brief. The completed evidence should be a storyboard or multimedia equivalent clearly indicating the operation and design of

Higher National Unit specification: support notes (cont)

Unit title: User Interface Development

the user interface. Additionally, the candidate should include supporting information in the form of annotations or proformas detailing the user and system requirements and how their design meets these requirements and the relevant Health and Safety legislation.

Open learning

This Unit does not necessitate the student working within a group activity. Assessment is based on the accuracy of responses, and the appropriateness and coherence of the prototype.

As such this unit can lend itself to delivery by open learning if delivered by means of a pre-defined design brief.

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: User Interface Development

This Unit is designed to enable you to gain an understanding of the key ideas in the design of user interfaces of computer systems and into the design and creation of prototype user interfaces based on those ideas.

You should learn about and be responsible for:

- Creating a tool to assess user interfaces.
- Creating a prototype of the sequence you design.

Three assessments will be used and you will need to produce a portfolio of evidence to demonstrate:

- Your understanding of the core principles of User Interface design
- You can critical evaluate 3 user interfaces of computer systems
- The standard of the prototype sequence you design
- How well you justify your design decisions

On completion of the unit you should be able to:

1. Describe the core concepts of User Interface design
2. Critically evaluate the user interfaces of computer systems
3. Design a tool to help you evaluate user interfaces
4. Produce a prototype of a user interface

Higher National Unit Specification

General information for centres

Unit title: User Interface: Testing and Evaluation

Unit code: DE33 35

Unit purpose: This Unit is designed to provide candidates with the knowledge and skills to test and implement the user interfaces of multimedia software products.

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

1. Describe the core concepts of Usability Engineering.
2. Create a user interface to a brief.
3. Apply the core concepts of usability engineering to test a user interface.
4. Evaluate the usability engineering process and techniques utilised in testing a user interface.

Credit value: 2 HN Credit(s) at SCQF level 8: (16 SCOTCAT credit points at SCQF level 8*)

**SCOTCAT 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 SCOTCAT 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 should have some prior knowledge and skills in Computing/IT. This may be evidenced by the possession of relevant National Units, HN units or experience. It is recommended that the candidate has completed HN Unit, User Interface Development.

Core skills: There may be opportunities to gather evidence towards core skills 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: This unit should be assessed by means of:

- 1 Written response showing that the candidate can describe the core concepts of usability engineering
- 2 A completed user interface created to a given brief
- 3 Written response showing that the candidate can explain design and media choices and indicate how the user interface is expected to function.
- 4 User interface testing data presented in the form of completed proformas.
- 5 Written response showing that the candidate can evaluate the techniques and processes utilised in testing a user interface.

This Unit can be assessed by means of a completed user interface and a single report containing all the above elements.

Higher National Unit specification: statement of standards

Unit title: User Interface: Testing and Evaluation

Unit code: DE33 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

Describe the core concepts of usability engineering.

Knowledge and/or skills

- Defining objectives
- Evaluation techniques
- When and where to evaluate
- Problem areas in evaluation

Evidence Requirements

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can with reference to current agreed professional standards, identify and explain the core concepts of usability engineering. The evidence must be derived from an investigation of current research into usability engineering, with particular reference to the development of user interfaces for multimedia products. Candidates' responses can be judged to be satisfactory where the evidence provided demonstrates a broad knowledge of the following core concepts of usability engineering:

- Defining objectives (user needs analysis, user objectives, user profiling)
- Evaluation techniques (contextual inquiry, questionnaires, surveys, interviews and focus groups, heuristic evaluation, feature inspection, consistency inspection)
- When and where to evaluate (stages of design & production, environment)
- Problem areas in evaluation (sampling, objectivity, selection of testers)

Evidence for the knowledge and/or skills in this outcome must be presented in the form of a report of approximately 500 words in response to a specific question or questions.

Higher National Unit specification: statement of standards (cont)

Unit title: User Interface: Testing and Evaluation

Assessment Guidelines

The evidence could take the form of part of a larger report combining evidence addressing Outcomes 1 to 4. If the evidence takes this form then the evidence for Outcome 1 in the report should be approximately 500 words.

Outcome 2

Create a user interface to a given brief.

Knowledge and/or skills

- Identifying user requirements
- Creating a user interface
- Explaining how the user interface is expected to function

Evidence requirements

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can produce a working user interface in the form of a software implementation, to a given brief. The user interface should conform to the brief, taking into account the requirements of the user.

The completed user interface must be a software product featuring:

- Appropriate user interaction elements (e.g. text, still images, animation, colour, sound, video)
- Appropriate user interfacing devices or technology (e.g. buttons, sliders, mouse, joystick, keyboard)

The completed user interface must enable the user to access 4 different “screens” (or equivalent range) of information.

Additionally, candidates must also produce a report of approximately 300 words, containing:

- An identification of the functional requirements of the user interface (uses, scope, tone)
- An explanation of design and media choices in relation to the intended user (layout, colour, text, images, sound, interactivity)
- An indication of how the user interface is expected to function.

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

Higher National Unit specification: statement of standards (cont)

Unit title: User Interface: Testing and Evaluation

Assessment Guidelines

The given brief should identify the proposed user and the specific functional requirements of the user interface (e.g. “Create a user interface for a multimedia slideshow on children’s attractions in Scotland that enables the user to view a portfolio of multimedia content in the order of their choosing. The typical user will be Scots children aged 8-12.”)

A small amount of content may be required to be generated for the multimedia product, but the focus is on the creation of a user interface for accessing that content.

Candidates may use the prototype of a user interface created in Outcome 3 of HN Unit, User Interface Development as the basis for the implementation of their completed user interface.

The written evidence could take the form of part of a larger report combining evidence addressing Outcomes 1 to 4. If the evidence takes this form then the evidence for Outcome 2 in the report should be approximately 300 words.

Outcome 3

Apply the core concepts of usability engineering to test a user interface.

Knowledge and/or skills

- Selecting testing techniques
- Justification of selected testing techniques
- Testing a user interface
- Examining test results
- Redesigning a user interface

Evidence requirements

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can present data obtained from testing the user interface created in Outcome 2. This will take the form of a portfolio of evidence consisting of:

- Identification of chosen testing technique(s)
- Explanation of the reasons for the chosen technique(s) of testing
- Completed examples of testing data compiled using the above technique(s)

Higher National Unit specification: statement of standards

Unit title: User Interface: Testing and Evaluation

Additionally, annotated hardcopy examples of “before” and “after” screen grabs must be presented to indicate how the user interface was redesigned to take account of data obtained from the testing process.

Assessment Guidelines

Candidates should select techniques based on the core concepts of Usability Engineering identified in Outcome 1.

The evidence may be presented as a portfolio of evidence as part of a larger report covering Outcomes 1-4.

Outcome 4

Evaluate the usability engineering process and techniques utilised in testing a user interface

Knowledge and/or skills

- Evaluating testing process(es)
- Evaluating testing technique(s)

Evidence requirements

Candidates will need evidence to demonstrate their skills and/or knowledge by showing that they can write a report of approximately 300 words, evaluating the candidate’s choice and implementation of the techniques and processes utilised in Outcome 3, including:

- Planning
- Scheduling
- Presenting
- Collating
- Interpreting
- Redesigning.

The evidence must clearly show the degree to which the chosen testing techniques and procedures influenced the evolution of the user interface developed in Outcome 2. This must be evidenced by reference to “before” and “after” screenshots.

Higher National Unit specification: statement of standards (cont)

Unit title: User Interface: Testing and Evaluation

Additionally, the evidence must clearly show how the chosen testing techniques and processes have identified problem areas and/or strengths in the design and/or implementation of the user interface. This must be evidenced by summaries of user data or annotated test response documents.

Assessment Guidelines

The evidence for Outcome 4 could form part of a larger report combining evidence addressing Outcomes 1 to 4. If the evidence takes this form then the evidence for Outcome 4 in the report should be approximately 300 words.

Administrative Information

Unit code: DE33 35

Unit title: User Interface: Testing and Evaluation

Superclass category: CB

Date of publication: November 2003

Source: SQA

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. The cost for each Unit specification is £2.50. (A handling charge of £1.95 will apply to all orders for priced items.)

Higher National Unit specification: support notes

Unit title: User Interface: Testing and Evaluation

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 primarily concerned with equipping candidates with grounding in creating and testing user interfaces within multimedia contexts. The emphasis should be placed on engineering a user interface that can be incorporated into a specified multimedia brief. Candidates should come to understand core concepts of usability engineering, produce a user interface that conforms to users' needs, thoroughly test and redesign the interface, and evaluate the testing process. The emphasis throughout is on the creation and refinement of a user interface to meet the needs of a given multimedia brief. This brief may be generated from within the requirements of a multimedia project.

If this Unit is delivered as a freestanding Unit, then the evidence requirements will still need to be incorporated into a multimedia presentation.

Centres should feel free to adapt the delivery of the Unit to fit the specific requirements of their course structures.

Candidates should be able to complete the Unit using basic presentation equipment. There is no requirement to produce a user interface using professional level software or hardware. Candidates should be able to complete the Unit using a range of multimedia software. No particular packages are specified. The emphasis of the Unit should be on achieving the best possible quality of user interface within the constraints of the given brief and available resources.

Guidance on the delivery and assessment of this unit

This Unit is designed to be both theoretical and practical in nature and, as such, the keeping of accurate production and testing documentation containing all relevant paperwork (storyboards/design brief, user responses and screen grabs) will be an important part of assessment evidence.

Candidates will also be required to provide a written evaluation of the process and techniques of testing and redesigning (planning, scheduling, presenting, collating, interpreting, incorporating).

Higher National Unit specification: support notes (cont)

Unit title: User Interface: Testing and Evaluation

It is recommended that an integrated approach is taken to assessment and that candidates are encouraged to produce a portfolio of work that covers all four Outcomes.

Open learning

This unit does not necessitate the student working within a group activity. Assessment is based on the quality of the product, the accuracy of the responses to users' feedback and the final evaluation. As such this unit can lend itself to delivery by open learning if delivered by means of a well defined brief.

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 - publication code A1030)

Special needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

General information for candidates

Unit title: User Interface: Testing and Evaluation

This Unit is designed to enable you to design and test a user interface for inclusion in a multimedia project.

You will learn about and be responsible for:

- Designing the user interface
- Creating the user interface using appropriate software.
- Organising testing of the user interface
- Redesigning the interface based on the users' needs

You will be assessed on:

- Your knowledge of Usability Engineering core concepts
- The standard of the design you produce
- The standard of the paperwork produced.
- The suitability of the amendments you make to the user interface.
- The standard of the final product and process evaluation.

On completion of the Unit you should be able to:

1. Describe the core concepts of usability engineering
2. Create a user interface to a brief
3. Apply the core concepts of usability engineering to test a user interface
4. Evaluate the usability engineering process and techniques utilised in testing a user interface

Higher National Group Award Graded Unit Specification

General Information for Centres

This group award Graded Unit has been validated as part of the HNC Interactive Multimedia Creation. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of group award Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Group Award Graded Unit Title: Interactive Multimedia Creation:
Group Award Graded Unit 1

Group Award Graded Unit Code: DE36 34

Type of Group Award Graded Unit: Examination

Assessment Instrument: Closed book question paper

Credit value: 1 HN Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

SCQF (the Scottish Credit and Qualifications Framework) brings Scottish qualifications into a single framework of 12 levels ranging from SQA Access 1 to doctorates. The SCQF includes degrees; HNC/Ds; SQA National Qualifications; and SVQs. Each SQA Unit is allocated a number of SCQF credit points at a specific level. 1 SCQF point = 10 hours of learning. HN candidates are normally expected to input a further number of hours, matched to the credit value of the Unit, of non-contact time or candidate-led effort to consolidate and reinforce learning.

Purpose: This group award Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HNC Interactive Multimedia Creation:

- Develop knowledge and skills in analysis and synthesis
- Develop study and research skills
- Prepare candidates for progression to further study in multimedia or a related discipline.

Recommended Prior Knowledge and Skills: It is recommended that the candidate should have completed or be in the process of completing the following Units relating to these specific aims prior to undertaking this group award Graded Unit:

- DE2Y 34 Multimedia Fundamentals – 2 HN credits
- DE34 34 User Interface Development – 1 HN credit
- DE2W 34 Graphics for Creative Multimedia Design – 2 HN credits
- D7LR 34 Writing for the Media – 1 HN credit

Arrangements for HNC/D Interactive Multimedia Creation – 25 November 2003

General Information for Centres (cont)

Core Skills: There are no Core Skills embedded in this group award Graded Unit specification. However there may be opportunities to gather evidence towards core skills in this unit.

Assessment: This examination-based group award Graded Unit is a closed book question paper. It will consist of a written examination of three hours.

Administrative Information

Graded Unit Code: DE36 34

Graded Unit Title: Interactive Multimedia Creation: Group Award Graded Unit 1

Date of publication: November 2003

Source: SQA

Special Needs: This group award Graded Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative assessment arrangements. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (December 2001, AA0645/3).

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged

Additional copies of this group award Graded Unit specification (if sourced by the Scottish Qualifications Authority), can be purchased from the Scottish Qualifications Authority. The cost for each specification is £2.50 plus a handling charge of £1.95 per order.

**Higher National Group Award Graded Unit specification:
Instructions for designing the assessment task and assessing
candidates**

Group Award Graded Unit Title: Interactive Multimedia Creation:
Group Award Graded Unit 1

Conditions of Assessment

The assessment is based on a closed book question paper written examination lasting three hours. The grade given will reflect the candidate's achievement on the first assessment event. A candidate may wish to retake the group award Graded Unit but this should be based on a significantly different examination.

The examination should be unseen and the assessment should be conducted in controlled and invigilated conditions.

Instructions for designing the assessment task:

The examination should be designed to assess the candidate's critical knowledge and understanding of the topics relating to the specific aims which this group award Graded Unit is designed to cover. The questions and corresponding marks should be designed in accordance with the ranges indicated in the table that follows. However, the overall total mark for the examination is 100.

Topic	Level of knowledge/ understanding	Weighting/ Mark Allocation
Section 1		
Multimedia Fundamentals	State, identify, describe, select	12%
User Interface Development	State, identify, describe, select	8%
Graphics for Creative Multimedia	State, identify, describe, select	12%
Writing for the Media	State, identify, describe, select	8%
Section 2		
Multimedia Fundamentals	Illustrate, explain, categorise, summarise, compare, test, evaluate	20%
User Interface Development	Select, compare, categorise, evaluate, describe, explain, summarise	10%
Graphics for Creative Multimedia	Describe, explain, plan, compare, test, design	20%
Writing for the Media	Describe, explain, illustrate, give examples	10%
TOTAL for Paper		100%

**Higher National Group Award Graded Unit specification:
Instructions for designing the assessment task and assessing
candidates (cont)**

The examination will be marked out of 100. Assessors will aggregate the marks achieved by the candidate to arrive at an overall mark for the examination. Assessors will then assign a grade to the candidate for this group award Graded Unit based on the following grade boundaries:

- ◆ A = 70% – 100%
- ◆ B = 60% – 69%
- ◆ C = 50% – 59%

Higher National Group Award Graded Unit Specification

General Information for Centres

This Group Award Graded Unit has been validated as part of the HND Interactive Multimedia Creation. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of Group Award Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Group Award Graded Unit Title: Interactive Multimedia Creation:
Group Award Graded Unit 2

Group Award Graded Unit Code: DE37 35

Type of Group Award Graded Unit: Project

Assessment Instrument: Practical assignment

Credit value: 2 HN Credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

SCQF (the Scottish Credit and Qualifications Framework) brings Scottish qualifications into a single framework of 12 levels ranging from SQA Access 1 to doctorates. The SCQF includes degrees; HNC/Ds; SQA National Qualifications; and SVQs. Each SQA Unit is allocated a number of SCQF credit points at a specific level. 1 SCQF point = 10 hours of learning. HN candidates are normally expected to input a further number of hours, matched to the credit value of the Unit, of non-contact time or candidate-led effort to consolidate and reinforce learning

Purpose: This Group Award Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HND Interactive Multimedia Creation.

- To prepare candidates for employment in the multimedia or new media industries
- To develop a range of specialist technical skills and knowledge in the use of multimedia development strategies, tool and applications.
- Conduct independent project work involving the integration and application of a variety of multimedia skills within a determined time scale.

Recommended Prior Knowledge and Skills: It is recommended that the candidate should have completed or be in the process of completing the following Units relating to the above specific aims prior to undertaking this Group Award Graded Unit:

- D75J 35 Project Management
- D75W 34 Multimedia: Developing Multimedia Applications

General Information for Centres (cont)

- DE33 35 User Interface Testing and Evaluation
- DE2W 34 Graphics for Creative Multimedia Design

Core Skills: There is no automatic certification of Core Skills or Core Skills components as part of this Graded Unit. However, there may be opportunities to develop the Core Skill of Problem Solving.

Assessment: This Group Award Graded Unit will be assessed by the use of a practical assignment. The “fleshed-out” practical assignment should provide the candidate with the opportunity to produce evidence that demonstrates she/he has met the aims of the Group Award that this Group Award Graded Unit covers.

This Graded Unit should be undertaken on an individual basis. Candidates should be encouraged to select an appropriate project that involves them in developing an interactive multimedia presentation which requires the integration and application of a variety of multimedia skills within a determined time scale.

Administrative Information

Graded Unit Code: DE37 35

Graded Unit Title: Interactive Multimedia Creation – Group Award Graded Unit 2

Date of publication: November 2003

Source: SQA

Special Needs: This Group Award Graded Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative assessment arrangements. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (December 2001, AA0645/3).

© Scottish Qualifications Authority 2003

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Group Award Graded Unit specification if sourced by the Scottish Qualifications Authority can be purchased from the Scottish Qualifications Authority. The cost for each specification is £2.50 plus a handling charge of £1.95 per order.

Higher National Group Award Graded Unit Specification: Instructions for designing the assessment task and assessing candidates

Group Award Graded Unit Title: Interactive Multimedia Creation:
Graded Unit 2

Conditions of Assessment

The candidate should be given a date for completion of the Practical Assignment. However, the instructions for the assessment task should be distributed to allow the candidate sufficient time to assimilate the details and carry out the assessment task. During the time between the distribution of the assessment task instructions and the completion date, assessors may answer questions, provide clarification, guidance and reasonable assistance. The assessment task should be marked as soon as possible after the completion date. The final grading given should reflect the quality of the candidate's evidence at the time of the completion date. Reassessment of this Group Award Graded Unit should be based on a significantly different assessment task.

At this level, candidates should work independently. It is up to Centres to take reasonable steps to ensure that the project is the work of the candidate. For example, Centres may wish to informally question candidates at various stages on their knowledge and understanding of the project on which they have embarked. Centres should ensure that where research etc, is carried out in other establishments or under the supervision of others that the candidate does not receive undue assistance.

Instructions for designing the assessment task

The assessment task is a project. The project undertaken by the candidate must be a complex task which involves:

- ◆ variables which are complex or unfamiliar
- ◆ relationships which need to be clarified
- ◆ a context which may be familiar or unfamiliar to the candidate

The assessment task must require the candidate to:

- ◆ identify a suitable situation where an interactive multimedia solution could be implemented
- ◆ analyse the task and decide on a course of action for undertaking the project
- ◆ identify the client and user requirements for the project
- ◆ consider and evaluate possible elements that could be used to form a solution to the project
- ◆ plan and organise work and carry it through to completion
- ◆ design and build an interactive multimedia solution to a given specification
- ◆ construct or assemble scripts to provide interactivity
- ◆ test and evaluate the solution, tracking changes and making amendments where required

Higher National Group Award Graded Unit specification:

Instructions for designing the assessment task and assessing

candidates (cont)

- ◆ reflect on what has been done, critically evaluate the approach taken to the project, and draw conclusions for the future
- ◆ produce evidence of meeting the aims which this Group Award Graded Unit has been designed to cover

Guidance on grading candidates

Candidates who meet the minimum Evidence Requirements will have their achievement graded as C – competent, or A – highly competent or B somewhere between A and C. The grade related criteria to be used to judge candidate performance for this Graded Unit is specified in the following table.

Grade A	Grade C
<p>Is a seamless, coherent piece of work which:</p> <ul style="list-style-type: none">• has sufficient evidence for the three essential phases of the project, is produced to a high standard, and is quite clearly inter-related• demonstrates an accurate and insightful interpretation of the project brief• is highly focused and relevant to the tasks associated with the project brief• is clear and well structured throughout and language used is of a high standard in terms of level, accuracy and technical content• effectively consolidates and integrates required knowledge and skills	<p>Is a co-ordinated piece of work which:</p> <ul style="list-style-type: none">• has sufficient evidence of the three essential phases of the project, is produced to an adequate standard• demonstrates an acceptable interpretation of the project brief• is focused and relevant to the tasks associated with the project brief• is satisfactorily structured and language used is adequate in terms of level, accuracy and technical content• consolidates and integrates knowledge and skills but this may lack some continuity and consistency

Higher National Group Award Graded Unit specification:

Instructions for designing the assessment task and assessing

candidates (cont)

Evidence Requirements

The project consists of three stages: planning; developing; and evaluating. The following table specifies the minimum evidence required to pass each stage.

Note: The candidate must achieve **all of the minimum evidence** specified below for each stage of the project in order to pass the Group Award Graded Unit.

Project Stage	Minimum Evidence Requirements
Stage 1 — Planning	<ul style="list-style-type: none">• analysis of project, identifying the factors influencing the project and how these inter-relate• a development approach to deal with the project – candidate may:<ul style="list-style-type: none">➤ select or adapt an accepted project model➤ design a new approach to the project• a justification for this selection, adaptation, or development of the adopted approach, in terms of:<ul style="list-style-type: none">➤ resources available➤ time available➤ comparisons with other possible approaches• a project development plan to carry out the project based on the analyses undertaken• an investigation into possible alternative solution – candidates should conduct a critical evaluation of existing solutions <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Planning stage.</i></p>

<p>Stage 2 — Developing</p>	<ul style="list-style-type: none"> • a project plan and a project schedule should be produced for the development work, using appropriate project management software • design techniques such as: <ul style="list-style-type: none"> ➤ storyboards ➤ structure charts ➤ pseudo code ➤ logical flow charts <p style="text-align: right;">should be produced by candidates as design documentation for the project.</p> <ul style="list-style-type: none"> • the design of interaction elements should be included • a catalogue of multimedia assets used within the project is required • scripts, complete with internal documentation, should be included, if used in the project • the completed product • the development of a suitable and appropriate test strategy • defects found during testing are listed and evidence of their correction provided • demonstration that the product has been sufficiently tested to assure reasonably low defect levels, evidenced by a formal testing document <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Developing stage</i></p>
<p>Stage 3 — Evaluating</p>	<ul style="list-style-type: none"> • an evaluation of the effectiveness of the approach/strategy adopted, including all stages of the project: <ul style="list-style-type: none"> ➤ project analysis ➤ project organisation ➤ outcome of project • the evaluation should include

	<ul style="list-style-type: none"> ➤ the criteria on which to base the evaluation ➤ the identification and gathering of appropriate evidence: <ul style="list-style-type: none"> - use of qualitative / quantitative methods - comparisons with other systems / products - impact studies - product testing - market research <ul style="list-style-type: none"> • evaluation of the effectiveness of the problem solving activity which explains the relevance of the evidence – this should be related to the original project analysis • alternative approaches considered are listed • modifications to chosen approach during the course of the project are documented • recommendations, with justifications, for the future which are relevant to the problem <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Evaluating stage</i></p>
--	---