



## Higher National Unit specification: general information

**Unit title:** Computer Arts and Design: Technologies

**Unit code:** FD64 35

**Superclass:** CE

**Publication date:** August 2011

**Source:** Scottish Qualifications Authority

**Version:** 01

### Unit purpose

This Unit is designed to prepare the candidate for working within the disciplines of Computer Art and Design by providing essential underpinning technical knowledge used in that discipline. It is intended that the candidate will, as part of this process develop research and analytical skills within a chosen area of Computer Arts and Design.

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

- 1 Identify the key technologies used in the production of Computer Arts and Design.
- 2 Evaluate the key technologies used in the production of Computer Arts and Design.
- 3 Apply the key technologies used in the production of Computer Arts and Design.

### 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 the use of a computer, and had experience of using it in the context of an art and design project. This may be evidenced by the possession of relevant Higher National Units such as Technologies for Computer Arts and Design, Basic Web Design or Screen Design 1, or by prior experience. Higher Art & Design and or Craft Design and Technology would provide useful background knowledge, but are not essential to success in this Unit. It is also recommended that candidates have either completed, or are currently undertaking HN Unit, Digital Imaging 1.

### Credit points and level

1 Higher National Unit credit at SCQF level 8: (8 SCQF credit points at SCQF level 8\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

## **General information (cont)**

### **Core Skills**

There are opportunities to develop the Core Skills of *Information and Communication Technology, Problem Solving, Numeracy* and *Communication* at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

### **Context for delivery**

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

### **Assessment**

A number of product-based assessment instruments will be required which will include work/sketchbooks of gathered evidence, illustrated report writing and evidence of practical work. Outcomes 1, 2 and 3 can all be cross-assessed through product-based assessment. Integrative assessment should be encouraged across a range of Design Units as appropriate to the framework in which the Unit is offered. If this approach is taken, then a matrix for assessment should be devised.

## Higher National Unit specification: statement of standards

**Unit title:** Computer Arts and Design: Technologies

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### Outcome 1

Identify the key technologies used in the production of Computer Arts and Design

#### Knowledge and/or Skills

- ◆ Colour theory
- ◆ Display systems
- ◆ Managing files
- ◆ Network technologies

#### Evidence Requirements

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

- ◆ assemble an annotated, illustrative research portfolio for each of the above Knowledge and/or Skills
- ◆ all work must be self-initiated and cover all the key technologies identified in the five knowledge and/or skills
- ◆ the research portfolio will be presented as part of a work/sketchbook, kept specifically for this Unit
- ◆ evidence of key texts and images
- ◆ appropriate evidence of presentation and storage management skills.

#### Assessment Guidelines

Candidates should demonstrate that they can identify and collate appropriate material that shows an understanding of the key theories used in the production/practice of their chosen area of Computer Arts and Design.

There is an opportunity for this Outcome to be assessed with Outcome 2 as an individual learning activity or it could form part of a project brief that requires a specific research Outcome. There is a major opportunity, therefore, for integration of this Outcome with a large variety of existing design projects throughout a variety of art and design, craft and design, multimedia, web, television and broadcast media and creative industries frameworks.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Computer Arts and Design: Technologies

If used in this manner, an assessment matrix should be devised.

### Outcome 2

Evaluate the key technologies used in the production of Computer Arts and Design.

#### Knowledge and/or Skills

- ◆ Colour theory
- ◆ Display systems
- ◆ Managing files
- ◆ Network technologies

#### Evidence Requirements

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

- ◆ evaluate, by production of a research portfolio for each of the key technologies identified from the knowledge and /or skills listed above, within a specific chosen Computer Arts and Design discipline
- ◆ use appropriate communication and presentation skills.

#### Assessment Guidelines

The candidate should demonstrate that they have developed critical and evaluation skills within their chosen area of Computer Arts and Design. Candidates are expected to evaluate examples of the application of the given Knowledge and Skills within their chosen area of study.

There is an opportunity for this Outcome to be assessed with Outcome 3 as an individual learning activity or it could form part of a project brief that requires a specific research Outcome. There is a major opportunity, therefore, for integration of this Outcome with a large variety of existing design projects throughout a variety of art and design, craft and design, multimedia, web, television and broadcast media and creative industries frameworks.

If used in this manner, an assessment matrix should be devised.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Computer Arts and Design: Technologies

### Outcome 3

Apply the key technologies used in the production of Computer Arts and Design.

#### Knowledge and/or Skills

- ◆ Colour theory
- ◆ Display and storage systems
- ◆ Managing files
- ◆ Network technologies

#### Evidence Requirements

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

- ◆ apply theoretical knowledge to a practical art or design project within a chosen Computer Arts and Design discipline
- ◆ research and develop ideas for this Outcome which must be evidenced in a sketchbook or appropriate equivalent
- ◆ produce a finished art and design artefact or product to an appropriate time/scale within a chosen subject area.

#### Assessment Guidelines

The candidate should demonstrate that they have developed the ability to understand theoretical ideas within their chosen area of Computer Arts and Design. This can be evidenced through informal observation, formative checklists and summative project work

This Outcome could be assessed individually however there is an opportunity for integration of this Outcome with a large variety of existing art and design, craft and design, multimedia, web, television and broadcast media and creative industries frameworks.

If used in this manner, an assessment matrix should be devised.

## Higher National Unit specification: support notes

### Unit title: Computer Arts and Design: Technologies

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

The purpose of this Unit is to provide the candidates with background knowledge of the technologies used in the practice of computer arts and design. This could include subjects such as multimedia, web design, digital video, illustration, time-based art, computer art 2D/3D animation and 3D modelling.

The Unit is intended as both a research, and practical Unit where the candidate is invited to, collect information and produce a work/sketchbook and then evaluate this information by analysing the range of applications of the given technologies from the candidates' subject area. In the final Outcome, Candidates should apply this knowledge, again within their chosen area.

Within the context of the Outcomes and Knowledge/Skills there has been no recommendation or identification of specific subject content. Computer Arts and Design are rapidly evolving disciplines and any prescriptive content could be out of date very quickly. This section will highlight the range of theoretical issues associated with Computer Arts and Design at the time of writing. There will be an on-going review of subject content to ensure fitness for purpose.

Technologies used in the practice of Computer Arts and Design include:

- 1 **Colour theory in Computer Graphics:** Colour mode, RGB (additive) CMYK (subtractive) hexadecimal, hue, saturation, value, pixels, alpha channels, grey scale, histogram.
- 2 **Graphic display, location and storage systems:** Cartesian systems, Grids, Pixels, bit/depth, colour palettes bitmaps/raster, vectors, sampling, interpolation, resolution, half tone, anti-alias, aspect ratio.
- 3 **Managing Files:** Graphic file formats (format algorithms, format types). Metadata. Graphic Compression systems: (temporal, spatial, bit depth, lossy, loss-less). Naming conversions, file structures.
- 4 **Network Technologies:** Blogging tools, video and image file sharing. Social Networking.

## Higher National Unit specification: support notes (cont)

**Unit title:** Computer Arts and Design: Technologies

### Guidance on the delivery and assessment of this Unit

This Unit forms part of the Computer Arts and Design Group Award and has been identified as one of three key framework skills Units in the award.

This Unit is likely to form part of a Group Award that is primarily designed to provide candidates with the background knowledge of different technologies used in the practice of computer arts and design. It is expected that the candidate will have gained some experience of computer art and design before undertaking this Unit. It is therefore suggested that this Unit is introduced at a later stage of the delivery of the award so as to allow the candidate to contextualise the given information.

This Unit may be taught alone as an independent Unit. However the candidate must demonstrate applied knowledge through practical activities. It is therefore suggested that this Unit is delivered in the context of other practical based Units.

Assessment should be assessed summatively on completion of all three Outcomes. Interim assessment may also be utilised.

### Opportunities for developing Core Skills

All elements of the Core Skill of *Problem Solving*, namely Planning and Organising, Critical Thinking, and Reviewing and Evaluating would be developed and enhanced as candidates undertake the Unit, analysing and applying key technologies to a specific brief. Candidates will work unaided in the selection of appropriate software and the modification or customising of applications to meet needs of purpose and context. Following procedures for security and safety will be routine practice. Analytical evaluation of all stages of proposed solutions and their potential and actual impact will be on-going. Access, to and interpretation and evaluation of examples applied materials would be of value during formative work. and candidates could be supported in identifying appropriate methods to measure achievement and progress.

Accuracy and effectiveness in the interpretation and communication of graphic information underpins the competencies developed in the Unit. Some candidates may benefit from formative opportunities to further develop skills in the analysis and application of graphic data, and the use of software packages or on-line tutorials to enhance skills may be useful.

Although communication skills are not formally assessed candidates should produce and present work and sketchbooks of evidence, illustrated reports and evidence of practical work. to a professional standard, using accepted formats and terminology. Essential ideas and information should be expressed accurately and coherently. Use of language, spelling, and punctuation should be accurate. Presentations should demonstrate that candidates are able to:

## Higher National Unit specification: support notes (cont)

**Unit title:** Computer Arts and Design: Technologies

- ◆ collate, organise and structure accurate information effectively
- ◆ signpost key points
- ◆ select and produce support materials for their impact
- ◆ use appropriate non-verbal communication techniques
- ◆ respond to any questions in a way that progresses communication

### 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.

### Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements)

## History of changes to Unit

Version	Description of change	Date

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## General information for candidates

### Unit title: Computer Arts and Design: Technologies

The purpose of this Unit is to provide you with the background knowledge of the technologies used in the practice of computer arts and design. This could include multimedia, web design, digital video, illustration, time-based art, computer art 2D/3D animation and 3D modelling. It will help to place your elected vocational area in context and allow you to explore a range of theoretical issues which will then help you understand some of the conceptual ideas behind using the computer to produce art and design. You will be expected to undertake a number of research activities and some analysis into the following subject areas.

Technologies used in the practice of Computer Arts and Design:

- ◆ **Colour theory in Computer Graphics:** Colour mode, RGB (Additive) CMYK (subtractive) hexadecimal, hue, saturation, value, pixels, alpha channels, grey scale, histogram
- ◆ **Graphic display, location and storage systems:** Cartesian systems, Grids, Pixels, bit/depth, colour palettes bitmaps/raster, vectors, sampling, interpolation, resolution, half tone, anti-alias, aspect ratio
- ◆ **Managing Files:** Graphic File formats (format algorithms, format types), Metadata, Graphic compression systems (temporal, spatial, bit depth, lossy, loss-less), Naming conventions, file structures
- ◆ **Network Technologies:** Blogging tools, Video and image file sharing, Social networking

For Outcome 1 you will be required to compile an illustrative sketch/workbook of examples from the above list and apply it to your chosen subject area. Carrying out this research will help you to establish a basis for further study and introduce you to the disciplines of organisation, management and selection of materials.

For Outcome 2, you will be required to look at examples of the application of the given technologies within your chosen subject area and compile written and illustrative evidence that demonstrates that you have evaluated and understood your chosen examples.

In Outcome 3 you must then apply your knowledge to a practical art or design brief or assignment. Having made the investigation and analysis, you should have a clear idea of the technologies used in Computer Arts and Design. These considerations will then be applied to the development of practical work. The content of this will very much depend on your course of study, which may include fine art, visual communication, 3D design, film, television/broadcast media, and games design.

You will be expected to produce a finished artefact or design which demonstrates your understanding of Outcomes 1 and 2.