



Higher National Unit specification

General information for centres

Unit title: Digital Imaging: Bitmap Techniques

Unit code: F207 34

Unit purpose: This Unit is designed to enable the Candidate to explore digital imaging and gain technical knowledge of bitmapped digital imaging software. In addition, the Unit requires candidates to create design solutions with these skills introduced which allows the Candidate to develop their creative thinking. This Unit would be suitable for candidates wishing to develop advanced skills in digital imaging as it will develop an awareness of the importance of bitmapped images and their appropriateness for inclusion within design work. Organisational skills are included in the preparation of materials for the incorporation into a project.

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

- 1 Demonstrate an understanding of bitmap graphics.
- 2 Produce a design/s based on a project brief.
- 3 Use advanced features of a bitmapped graphics package.

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

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

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre, but candidates should be able to competently operate the basic functions of a computer and an awareness of how to operate design software applications would be an asset. Candidates may also benefit by having completed the HN Unit: F1YX 34 *Digital Imaging: Bitmap and Vector*.

Core Skills: This Unit requires that candidates analyse a given brief and provide solutions to the brief. There may be opportunities to gather evidence for the Problem Solving Core Skill at an appropriate level.

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.

This Unit is within the HNC Interactive Media and the PDA (Personal Development Award) Certificate in Digital Imaging at SCQF level 7 (subject to validation).

The term 'bitmapped graphics' used throughout this document, refers to both images and graphics.

General information for centres

Assessment: Evidence is required that candidates have achieved all Outcomes.

Candidates are encouraged to use the internet in any research etc, however, the evidence produced must be the candidate's own words. Assessors should assure themselves of the authenticity of candidate's evidence.

Written and/or oral recorded, performance and product evidence is required which demonstrates that the candidate has achieved the requirements of all of the Outcomes to show that the candidate has appropriate knowledge and understanding of the content of this Unit.

This Unit should be assessed by the assessment tasks detailed as follows:

- 1 Outcome 1 is a closed-book assessment and should take the form of a set of questions where the Candidate is required to produce evidence of their knowledge of digital graphics used in screen based applications.
- 2 Outcome 2 is an open-book assessment and should take the form of a practical assessment carried out under supervised conditions and is designed to demonstrate the candidate's knowledge and/or skills in producing designs to a given brief.
- 3 Outcome 3 is open-book assessment and should take the form of a practical assessment carried out under supervised conditions designed to demonstrate candidate's knowledge and/or skills in creating, manipulating and optimising graphics. There must be a checklist submitted which records that a candidate has achieved all necessary items from the Evidence Requirements and this checklist must be endorsed by the assessor with their name, signature and date.

Assessments for Outcomes 2 and 3 can be integrated into one holistic assessment. The practical assessments within this Unit should be based on the same case study.

Assessors should ensure themselves of the authenticity of the Candidate's evidence.

The Assessment Exemplar Pack for this Unit provides sample assessment materials including assessor checklists, practical tasks and an instrument of assessment for the knowledge. Centres wishing to develop their own assessments should refer to the Assessment Exemplar Pack to ensure a comparable standard.

Higher National Unit specification: statement of standards

Unit title: Digital Imaging: Bitmap Techniques

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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

Demonstrate an understanding of bitmap graphics

Knowledge and/or Skills

- ◆ Use of bitmap graphics
- ◆ Compression
- ◆ Output variations
- ◆ Colour reproduction
- ◆ Hardware
- ◆ Copyright

Evidence Requirements

Evidence of all the Knowledge and/or Skills in this Outcome will be assessed using a representative sample of twenty questions covering the bullet points below:

- ◆ identify the use of bitmap graphics within different applications
- ◆ identify and describe compressed and uncompressed file formats for bitmap graphics, eg what format(s) should be used for particular delivery media, their attributes, advantages and disadvantages
- ◆ describe compression, eg what compression is, the need for compressing graphics, lossy, lossless, what compression trying to achieve and artefacts caused by compressing graphics
- ◆ define the difference between outputting graphics for screen and print
- ◆ describe the procedure to optimise graphics for output to the Web
- ◆ describe gamut, RGB and CYMK, colour separations and ICC profile
- ◆ identify and describe hardware devices used in the development of bitmap graphics eg different types of display technologies, scanners, cameras, graphics tablets, stylus, light pens, mouse
- ◆ identify and describe current copyright issues with graphics

Higher National Unit specification: statement of standards (cont)

Unit title: Digital Imaging: Bitmap Techniques

The assessment must be supervised, controlled and presented under closed-book conditions and should last no more than 1 hour. The instrument of assessment must provide opportunities for the Outcome to be fulfilled by means of sampling across the range of content for Outcome 1. This assessment must change on each assessment occasion. Achievement can be decided by use of a 60% cut-off score.

Where re-assessment is required it should contain a different sample from the range of mandatory content.

Outcome 2

Produce a design(s) based on a project brief

Knowledge and/or Skills

- ◆ Analysis of the brief
- ◆ Explore creative concepts and possible solutions
- ◆ Clearly present ideas

Evidence Requirements

Produce, in the most appropriate format, potential solutions to a given project brief. The candidate must produce a suitable design from their analysis. This should be evidenced by:

- ◆ written analysis of the requirements of the project
- ◆ results of research, eg printouts of webpages
- ◆ clearly presented ideas, eg storyboards, mood boards, sketchbook, workbook, mock ups or 3D equivalent where ideas and concepts are fully explored

Assessment Guidelines

See Outcome 3

Outcome 3

Use advanced features of a bitmapped graphics package

Knowledge and/or Skills

- ◆ Acquire bitmapped graphics
- ◆ Create bitmapped graphics using appropriate software
- ◆ Manipulate bitmapped graphics using appropriate software
- ◆ Edit bitmapped graphics using appropriate software
- ◆ Implement bitmapped graphics into an application

Higher National Unit specification: statement of standards (cont)

Unit title: Digital Imaging: Bitmap Techniques

Evidence Requirements

Candidates will require evidence to provide evidence to demonstrate their Knowledge and/or Skills by showing they can in relation to a given project brief/s:

- ◆ use appropriate software in the production of bitmapped graphics
- ◆ create two composite images (each should contain a minimum of two elements)
- ◆ acquire a bitmapped graphic, eg using a scanner, digital stills camera, graphics tablet
- ◆ use a variety of paint tools including vector tools
- ◆ apply the correct attributes for the chosen medium, ie resolution, image size, colour mode
- ◆ use selection tools to select specific areas, reposition a selection, move and duplicate a selection, deselect, add to and subtract and rotate a selection
- ◆ manipulate a composite image, or images, incorporating at least five features of bitmapped graphic software, eg:
 - masks
 - alpha channels
 - layer techniques, eg effects, knockout layers, adjustment layers
 - special effect filters
 - gradients
 - patterns
- ◆ control effect parameters within each image
- ◆ acquire a digital camera file in its native format and convert to a suitable format applying corrections to the photograph, eg retouch, heal, adjust tonal range, blending modes
- ◆ edit, eg cut, copy, paste, bitmapped graphics as appropriate
- ◆ effectively organise layers within each image incorporating an appropriate naming convention
- ◆ optimise graphics as appropriate for intended method of delivery: correct file formats, compression, resolution, colour mode and appropriate file size
- ◆ apply copyright protection to at least one graphic
- ◆ save graphics in a format suitable for future editing
- ◆ use suitable naming conventions and filing structure
- ◆ submit all graphics on disk or upload them to a specified server. This must include originals and edited versions
- ◆ integrate the images into the specified application(s) eg a webpage or screen
- ◆ provide prints of the two composite images. The correct print settings must be applied

Throughout the development all work must be organised and contained in a production folder.

Assessment Guidelines

It is recommended that Outcomes 2 and 3 are integrated into one holistic assessment, however, these may be assessed individually if barriers are being placed on the learning process through this holistic approach.

It is recommended that this assessment is based around a theme. Candidates could be given a range of themes to choose from or select their own them from a source agreed by the assessor. Where candidates select their own theme this must be approved by the assessor.

Administrative Information

Unit code: F207 34

Unit title: Digital Imaging: Bitmap Techniques

Superclass category: CE

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History of changes:

Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Digital Imaging: Bitmap Techniques

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.

This could be allocated as follows:

- ◆ Outcome 1 10 hours
- ◆ Outcome 2 10 hours
- ◆ Outcome 3 20 hours

Guidance on the content and context for this Unit

This Unit is one of a series of Units at Higher National level relating to Interactive Media and it can also be taught as a standalone Unit. This Unit builds on the knowledge and skills of the HN Unit F1YX 34 *Digital Imaging: Bitmap and Vector*. Where candidates haven't achieved this Unit, it is recommended that they have prior knowledge and skills in the creation of graphics.

The purpose of this Unit is to enable candidates to acquire software skills to effectively undertake creative aspects of interactive media projects and to work with digital imaging software and hardware applications. The primary aim is to develop an understanding of graphics and the processes involved in creating them as opposed to teaching candidates to be designers.

It is suggested that candidates use software, editing tools, filters, etc, that relates to the design brief. At the time of writing, a number of applications were considered suitable for use in the delivery of this Unit and these include: Adobe Photoshop, Adobe Photoshop Elements, Corel Paint Shop Pro, and Adobe Fireworks.

Opportunities may exist to explore the print process in more detail and enhanced features of graphics software eg slicing, creating links, animated graphics.

This Unit is part of the PDA in Digital Imaging at SCQF level 7 (subject to validation) and maps (at the time of writing) to the Adobe Certificate Expert (Photoshop) certification.

An up-to-date list of the Adobe Photoshop ACE exam topics can be found at:
<http://partners.adobe.com/public/ace/main.html>

Guidance on the delivery and assessment of this Unit

This Unit is designed to apply digital and computer technology within the design process in the creation of a bitmap graphics project. It will enable the Candidate to explore digital imaging, and to create digital pieces of work to gain technical knowledge of digital bitmapped imaging software to a specific brief. Brief/s can either be set as individual projects or holistically as part of an overall project. Candidates are not expected to produce elaborate or sophisticated graphics as part of this Unit.

The emphasis for this Unit should be on teaching and candidate learning rather than on assessment. All topics listed within the knowledge and/or skills should be taught.

Higher National Unit specification: support notes (cont)

Unit title: Digital Imaging: Bitmap Techniques

This Unit may also be used in conjunction with the HN Unit F208 34 *Digital Imaging: Vector Techniques*. Brief/s used may be used holistically to assess competences for the Units.

The knowledge covered in Outcome 1 could be taught in tandem with the practical skills of Outcomes 2 and 3. This approach may help candidates to understand and digest concepts better. It is not compulsory to teach the knowledge and skills of this Unit in the order they have been presented in, although, it is recommended as the order has been applied in a natural sequence for learning this subject.

In Outcome 1, a candidate should undertake a closed-book assessment comprising of a set of questions.

In Outcome 2, emphasis should be placed on the process used for creating graphics and the individual's interpretation of the project. Ideas, once formalised, should be analysed and fully explored. Selection of a final project should be made in conjunction with the assessor. The primary aim is to develop an understanding of graphics and the processes involved in creating them as opposed to teaching candidates to be designers.

In Outcome 3, the Candidate should use advanced bitmap graphics software features to create digital imagery to a given brief/s.

Opportunities for developing Core Skills

This Unit requires that candidates analyse a given brief and provide solutions to the brief. There may be opportunities to gather evidence for the Problem Solving Core Skill at an appropriate level.

Open learning

This Unit is suited to open learning as evidence will be delivered digitally. Authenticity and sufficiency of candidate's evidence should be ensured and oral or online multiple questioning is appropriate.

For information on normal open learning arrangements, please refer to the SQA guide *Assessment and Quality Assurance for Open and Distance Learning (A1030)* which available on SQA's website (www.sqa.org.uk).

Candidates with disabilities and/or additional support needs

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

General information for candidates

Unit title: Digital Imaging: Bitmap Techniques

This Unit is designed to teach you how to manage digital and computer technology within the design process in the creation of a bitmap graphics project. It will enable you to explore digital imaging, and to create digital pieces of work to gain technical knowledge of digital bitmapped imaging software to a specific brief. Brief/s can either be set as individual projects or holistically as part of an overall project. Candidates are not expected to produce elaborate or sophisticated graphics as part of this Unit.

This Unit is split into three areas and concentrates on the following:

- 1 Demonstrate an understanding of bitmap graphics.
- 2 Produce a design/s based on a project brief.
- 3 Use advanced features of a bitmapped graphics package.

Throughout this Unit, you will gain practical skills in a bitmap creation software application.

Outcome 1, relates to the theoretical elements of bitmapped graphics — file types, compression, hardware, software, graphics for web and print and copyright issues. Assessment for this Outcome is by means of a series of questions.

In Outcome 2, the emphasis here is placed on the process used for creating graphics and the individual's interpretation of a design brief. The primary aim is to develop an understanding of graphics and the processes involved in creating them as opposed to teaching someone to be a designer. Assessment for this Outcome requires candidates to produce some ideas for a design brief.

In Outcome 3, you will use advanced bitmapped software features to create digital bitmapped graphics that meet design solutions.

An assessor may ask you to explain parts of your work to authenticate the evidence.

In order to complete this Unit successfully you will be required to demonstrate you have achieved success in all three Outcomes.