

Higher National Unit Specification

General information for centres

Unit title: Drawing Systems

Unit code: DV61 34

Unit purpose: The Unit is designed to introduce candidates to the basic principles of constructing standard projection methods used in creating measured imagery. It will offer the opportunity to develop a knowledge of the application of graphic conventions in an industrial context and to develop practical skills enabling them to produce imagery in accordance with current British Standards. The Unit is aimed at those wishing to develop skills in order to create imagery using standard projection methods.

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

- 1 Demonstrate knowledge of current British Standards in relation to projection methods and graphic conventions.
- 2 Apply orthographic projection methods to produce measured imagery.
- 3 Apply axonometric and oblique projection methods to produce measured imagery.
- 4 Apply perspective projection methods to produce measured imagery.

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. It may be beneficial if the candidate had some prior knowledge of technical draughting. This may be evidenced by the possession of relevant National Units, Higher Graphic Communication or prior vocational experience.

Core Skills: There are opportunities to develop the Core Skills of Numeracy and Problem Solving at SCQF level 6 in this Unit, although there is no automatic certification of Core Skills or Core Skills components. Further detail is provided in the support notes.

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)

This Unit is included in the framework for the HNC/HND Visual Communication Group Award. 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 Unit may be linked/integrated with the following Units in the HNC/HND Visual Communication Group Award: *Illustrative Diagrams: Parallel Projection* and *Illustrative Diagrams: Perspective Projection*.

Assessment: Outcome 1 should consist of a short written essay or response to a multiple-choice questionnaire. Outcomes 2, 3 and 4 should be practical assignments.

The assessment for Outcome 1 should be taken by candidates at one single event that should last one hour. The questions should be composed of a suitable balance of short answers, restricted response and structured questions and/or as a multiple-choice paper. Assessment should be conducted under closed-book conditions and as such candidates must not be allowed access to text books, handouts or notes.

Outcome 2 should be assessed as one assignment. In the assignment candidates are asked to create an orthographic projection using either first angle projection or third angle projection. All in accordance with British Standards. Candidates should be allowed to refer to relevant course material during this assignment.

Outcome 3 should be assessed as two separate assignments. In the first assignment candidates are asked to create an axonometric projection and in the second assignment candidates are asked to create an oblique projection. All in accordance with British Standards. Candidates should be allowed to refer to relevant course material in both assignments.

Outcome 4 should be assessed as three separate assignments. In the first assignment candidates are asked to create a one point perspective projection. For the second assignment candidates are asked to create a two point perspective projection and for the third assignment candidates are asked to create a three point perspective projection. All in accordance with British Standards. Each assignment should last six hours and candidates should be allowed to refer to relevant course material.

It should be noted that candidates must achieve all the minimum evidence specified for each Outcome in order to pass the Unit.

It is essential that the Centres ensure that the evidence generated is the candidate's own work.

Higher National Unit specification: statement of standards

Unit title: Drawing Systems

Unit code: DV61 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

Demonstrate knowledge of current British Standards in relation to projection methods and graphic conventions

Knowledge and/or skills

- ◆ The British Standards of classification of projection methods
- ◆ Line work: type and variety of thickness
- ◆ Dimensioning
- ◆ Titling
- ◆ Sectioning

Evidence Requirements

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

- ◆ identify and describe the classification of drawing types stated in British Standards
- ◆ identify and describe a minimum of three line types which conform to current draughting standards
- ◆ describe the method of dimensioning consistent with current draughting standards
- ◆ describe the method of sectioning of a given subject consistent with current draughting standards

Evidence must be generated through assessment undertaken in controlled, supervised conditions.

Assessment guidelines

The assessment for this Outcome should take the form of a single written exercise or equivalent. The assessment can be carried out after the topic has been taught or at the end of the Unit. This is at the discretion of the presenting centre. The written exercise should be a minimum of 500 words or equivalent. It is recommended that the centres develop checklists to support the assessment requirements for each of the knowledge and/or skills items.

Higher National Unit specification: statement of standards (cont)

Unit title: Drawing Systems

Outcome 2

Apply orthographic projection methods to produce measured imagery

Knowledge and/or skills

- ◆ Orthographic projection method
- ◆ View selection
- ◆ Construction accuracy
- ◆ Scale and format
- ◆ Appropriate medium/media

Evidence Requirements

Candidates will need to provide product evidence to demonstrate their knowledge and/or skills by showing that, in response to a given brief, they can:

- ◆ create orthographic projection imagery for either first or third angle projection, consistent with the British Standards definition, which includes:
 - a minimum of three views inclusive of a sectional view and section line
 - the titling of the views
 - dimensioning
 - the identification of a scale
 - select appropriate views
 - control accuracy
 - select appropriate scale
 - select and use appropriate medium/media

Evidence must be generated through a practical project undertaken under open-book conditions. Candidates should be allowed to refer to relevant course material.

Assessment guidelines

The assessment for this Outcome should take the form of a practical project created in response to a given brief. The brief should be devised by the tutor delivering the Unit. The assessment can be carried out after the topic has been taught or at the end of the Unit. This is at the discretion of the presenting centre. It is recommended that the centres develop checklists to support the assessment requirements for each of the knowledge and/or skills items.

Outcome 3

Apply axonometric and oblique projection methods to produce measured imagery

Knowledge and/or skills

- ◆ Axonometric and oblique projection methods
- ◆ View selection
- ◆ Construction accuracy
- ◆ Scale selection and format

Higher National Unit specification: statement of standards (cont)

Unit title: Drawing Systems

- ◆ Appropriate medium/media

Evidence Requirements

Candidates will need to provide product evidence to demonstrate their knowledge and/or skills by showing that, in response to a given brief, they can:

- ◆ create axonometric and oblique projection imagery, consistent with the British Standards definition, which includes a minimum of one view for each of the two categories
- ◆ select an appropriate viewpoint
- ◆ control accuracy
- ◆ select appropriate scale
- ◆ select and use appropriate medium/media

Evidence must be generated through a practical project undertaken under open-book conditions. Candidates should be allowed to refer to relevant course material.

Assessment guidelines

The assessment for this Outcome should take the form of a practical project to a given brief. The assessment may be carried out after the topic has been taught or at the end of the Unit. This is at the discretion of the presenting centre. The project brief should be devised by the tutor delivering the Unit. It is recommended that the centres develop checklists to support the assessment requirements for each of the knowledge and/or skills items.

Outcome 4

Apply perspective projection methods to produce measured imagery

Knowledge and/or skills

- ◆ Perspective projection methods
- ◆ Viewpoint selection
- ◆ Construction accuracy
- ◆ Scale selection and format
- ◆ Appropriate medium/media

Evidence Requirements

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

- ◆ create one point, two point and three point perspective projection imagery consistent with the British Standards definition, which includes a minimum of one image for each category
- ◆ select an appropriate viewpoint
- ◆ control accuracy
- ◆ select appropriate scale
- ◆ select and use appropriate medium/media

Higher National Unit specification: statement of standards (cont)

Unit title: Drawing Systems

Evidence must be generated through assessment undertaken under open-book conditions. Candidates should be allowed to refer to relevant course material.

Assessment guidelines

The assessment for this Outcome should take the form of a practical exercise. The assessment may be carried out after the topic has been taught or at the end of the Unit. This is at the discretion of the presenting centre. The practical exercise should be devised by the tutor delivering the Unit. It is recommended that the centres develop checklists to support the assessment requirements for each of the knowledge and/or skills items.

Administrative Information

Unit code:	DV61 34
Unit title:	Drawing Systems
Superclass category:	VF
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Higher National Unit specification: support notes

Unit title: Drawing Systems

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 has been written in order to allow candidates to develop knowledge, understanding and skills in the following areas:

- 1 Demonstrate knowledge of current British Standards in relation to projection methods and graphic conventions.
- 2 Apply orthographic projection methods to produce measured imagery.
- 3 Apply axonometric and oblique projection methods to produce measured imagery.
- 4 Apply perspective projection methods to produce measured imagery.

This Unit is at SCQF level 7 and has been devised as part of the HNC/HND Visual Communication. However this does not preclude the use of the Unit in other awards where the Qualification Design Team feel this to be appropriate.

Guidance on the delivery and assessment of this Unit

This Unit is mostly practical in nature and should be delivered with that in mind.

It is expected that candidates would normally be experiencing this area of learning for the first time, hence overly complex forms as reference material would be inappropriate.

The reference material used in creating the imagery should reflect the time allocation unless part of an integrated presentation.

The imagery could be created using traditional media and drawing boards or be computer generated or a mixture of both where appropriate.

Care should be taken to stress the use of British Standards, as conflicting information can be found in various textbooks and websites.

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

Opportunities for developing Core Skills

The Unit is designed to introduce candidates to the basic principles of constructing standard projection methods used in creating measured imagery and offers opportunities to develop knowledge and practical skills in the application of graphic conventions in accordance with current British Standards. Accurate calculation and the ability to interpret, measure, construct and manipulate complex graphic information underpins the competencies developed. The application of methods to produce imagery to a specific brief will involve on-going evaluation, adaptation and modification. Candidates will need to produce and present materials to a standard which would be acceptable in industry.

Higher National Unit specification: support notes (cont)

Unit title: Drawing Systems

Candidates will analyse requirements and seek solutions involving a range of practical issues as they apply theoretical knowledge and understanding to a complex design and work towards specific objectives in diagram development. Identifying and considering all variables, including scale and media, and analysing the relative significance of each before identifying and selecting a design approach will provide opportunities to develop elements of planning, critical thinking and general problem solving skills to an advanced level.

Open learning

This Unit could be delivered by open learning. However it would require planning by the centre to ensure sufficiency and authenticity of candidate 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.

New authentication tools may have to be devised for assessment and re-assessment purposes.

For further information and advice, please refer to the SQA document Assessment and Quality Assurance for Open and Distance Learning (A1030) which is available on SQA's website www.sqa.org.uk.

Candidates with additional support needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on SQA's website: www.sqa.org.uk.

General information for candidates

Unit title: Drawing Systems

The Unit is designed to introduce you to the basic principles of constructing standard projection methods used in creating measured imagery.

It will offer the opportunity to develop an understanding of the application of graphic conventions in an industrial context and to develop practical skills enabling you to produce imagery in accordance with current British Standards.

On completion of the Unit you will be able to:

- ◆ demonstrate knowledge of current British Standards in relation to projection methods and graphic conventions
- ◆ creating imagery using orthographic, axonometric, oblique and perspective projection methods

The formal assessment for this Unit is mostly practical, although there is a small written assessment required.

A brief for each assessment will be submitted to you by your tutor.

For this Unit you will be required to create and submit a series of nine measured images, which will relate to the different drawing projection methods outlined within British Standards.