



Higher National Unit specification

General information for centres

Unit title: Art Glass: Warm Glass Casting

Unit code: F1W2 35

Unit purpose: This Unit will enable candidates to develop skills and knowledge related to Art Glass: Warm Glass Casting. It is suitable for candidates studying glasswork or working in the glasswork industry.

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

- 1 Research and investigate cast glass designs.
- 2 Develop a design for a cast glass artefact.
- 3 Produce calculations based on volume of glass for casting.
- 4 Produce moulds for glass casting.
- 5 Produce cast glass artefacts.

Credit points and level: 2 HN credits at SCQF level 8: (16 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.*

Recommended prior knowledge and skills: While access to this Unit is at the discretion of the centre, candidates should have studied glass fusing techniques at SCQF level 6/7 and would benefit from having achieved the HN Unit F1X8 34 *Glass Fusing Techniques*.

Core Skills: There are opportunities to develop the Core Skills of Problem Solving, Numeracy and Working with Others at SCQF level 6 and IT at SCQF level 5 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: Assessment for this Unit could be holistic, with the candidate carrying out one practical task. Outcome 1 will require the candidate to produce a working sketchbook and provide evidence of research. Outcomes 2, 3, 4 and 5 will involve practical-based activities and the use of observation schedules or checklists to record candidate performance and health and safety.

Higher National Unit specification: statement of standards

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

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

Outcome 1

Research and investigate cast glass designs

Knowledge and/or Skills

- ◆ Research skills
- ◆ Cast glass designs
- ◆ Analysis skills
- ◆ Investigation skills
- ◆ Health and safety

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and Skills by showing that they can produce a folio of research material which includes information on a minimum of 10 artefacts. The information should include visuals and technical notes on:

- ◆ cast glass designs
- ◆ casting techniques used
- ◆ types of materials used for casts and types of glass used
- ◆ relevant health and safety requirements

All sources of research should be noted and candidates must show evidence of internet research.

Assessment Guidelines

This could be linked to the practical task of Outcomes 2, 3 and 4 and may be completed on pre-printed forms or in a format devised by the candidate which is suitable for recording artefacts investigated.

Higher National Unit specification: statement of standards (cont)

Unit title: Art Glass: Warm Glass Casting

Outcome 2

Develop a design for a cast glass artefact

Knowledge and/or Skills

- ◆ Design skills
- ◆ Problem solving
- ◆ Analysis skills
- ◆ Glass casting techniques
- ◆ Health and safety

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and Skills by showing that they can produce a minimum of four sketched cast glass designs. Candidates must then develop at least one of these designs to detail the materials required. They must also show the techniques which should be used and evidence of experimentation to ensure that their chosen design is viable.

Candidates should produce annotated notes to record their evaluation of the design and experimentation.

Evidence of candidate performance should be recorded on an observation schedule which should include observation of health and safety requirements in the workshop.

Assessment Guidelines

This could be linked to the practical task of Outcomes 1, 3, 4 and 5. Candidates could be given a design brief or could be asked to design a cast glass artefact based on one of the researched designs from Outcome 1.

Outcome 3

Produce calculations based on volume of glass for casting

Knowledge and/or Skills

- ◆ Methods of calculating volume
- ◆ Glass to water displacement
- ◆ Temperatures for casting
- ◆ Soak times for casting
- ◆ Annealing time for casting

Higher National Unit specification: statement of standards (cont)

Unit title: Art Glass: Warm Glass Casting

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and Skills by showing that they can, for a minimum of three agreed glass artefacts, produce the following information for each cast glass artefact:

- ◆ calculation of the volume of glass required for casting within a range of 10% more or less than volume calculated
- ◆ calculation of temperatures and soak times within a range of 10 degrees above or below requirement and 5 minutes above or below required soak time
- ◆ calculation of correct annealing time within a range of 10 minutes above or below recommendations for the volume of glass and the types of glass used.

Each of these cast glass artefacts should be made in a mould created by the candidate.

Assessment Guidelines

This could be linked to Outcomes 2, 4 and 5 and may be completed on pre-printed forms or in a format devised by the candidate.

Outcome 4

Produce moulds for glass casting

Knowledge and/or Skills

- ◆ Mould materials
- ◆ Mould relief
- ◆ Clay
- ◆ Wax
- ◆ Health and safety

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and Skills by showing that they can produce at least three moulds for the purpose of casting glass. At least two of these moulds should use clay as a relief and at least one should use wax as a relief. Candidates must select mould materials that will sustain the high temperatures required for casting glass for each design. Candidates should retain notes about materials and casts created. These should include visuals. Health and Safety procedures must be adhered to throughout.

Candidate's performance should be recorded on an Observation Schedule.

Assessment Guidelines

This Outcome could be jointly assessed with Outcome 2, 3 and 5. Candidates could produce use digital photography to record the construction of the casts. See Assessment Guidelines after Outcome 5 for further guidance.

Higher National Unit specification: statement of standards (cont)

Unit title: Art Glass: Warm Glass Casting

Outcome 5

Produce cast glass artefacts

Knowledge and/or Skills

- ◆ Casting temperatures and times
- ◆ Annealing temperatures and times
- ◆ Clarity of glass
- ◆ Health and safety

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and Skills by showing that they can produce three cast glass artefacts. These artefacts should demonstrate the candidate's ability to produce the glass artefacts without gaps or devitrification type marks. Clarity of finished artefacts should be conducive to the type of glass used. Health and Safety procedures must be adhered to throughout. Casting temperatures and times, and annealing temperatures and times calculated should be followed.

Candidate performance should be recorded on an Observation Schedule which should include demonstration of the candidate wearing of Personal Protective Equipment at all times during the Unit and working in a safe manner without risk to themselves or others.

Assessment Guidelines

The candidate could be assessed holistically by producing three cast glass artefacts. These artefacts should be representative of the candidate's original designs. As part of the process of production, the candidate should produce sketches showing the development of the designs, calculate firing schedules which could be pre-printed pro formas. Candidates could be encouraged to maintain a folio of research information, a log book to retain all technical and design notes and the results of their experiments.

The candidate would be required to follow health and safety guidelines throughout the Unit and this would be recorded in observation schedules. The candidate should demonstrate the ability to work in a manner which conforms to the health and safety requirements of the workshop. This would include the wearing of Personal Protective Equipment at all times during the Unit and working in a safe manner without risk to themselves or others.

Administrative Information

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Unit title: Art Glass: Warm Glass Casting
Superclass category: WF
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Higher National Unit specification: support notes

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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 an optional Unit in the HNC/HND Art Glass Production Group Awards frameworks. Its purpose is to introduce candidates to Art Glass: Warm Glass Casting temperatures and times; annealing temperatures and times; materials for casting moulds.

Electric and/or Gas fired kilns may be used.

The importance of cleanliness and tidiness in the work area should be stressed throughout the Unit.

Candidates should be encouraged not only to follow Health and Safety requirements in the workplace but to research any specific manufacturer's instructions supplied with equipment. Manufacturer's catalogues and websites could be used as a source of reference for materials and equipment.

Types of glass which could be used within this Unit could include: Float glass, Bullseye glass, Spectrum casting glass, Artista casting glass and other tested compatible casting glasses.

Throughout the Unit candidates will require to communicate and work with others in a workshop environment. They will be required to co-operate and co-ordinate their work with others to ensure that everyone has the opportunity to use specialist equipment.

Guidance on the delivery and assessment of this Unit

Candidates should also be encouraged to develop their design skills and to investigate cast glass designs on the internet and by visiting exhibitions and museums. They should be encouraged throughout to investigate the construction and technical aspects of the artefacts researched.

Candidates should have the opportunity to practise and to produce moulds and artefacts until they have achieved a level of competence where they can produce a selection of cast glass artefacts of varying sizes and designs.

Outcome 1

Candidates should be guided by the tutor on methods of investigation, research and reporting of findings. Pro formas could be devised or candidates could be encouraged to gather all information into a folder or portfolio. Candidates should be encouraged to note the source of the information and should be encouraged to use digital imagery to record cast glass items.

Higher National Unit specification: support notes (cont)

Unit title: Art Glass: Warm Glass Casting

Outcome 2

Candidates should be encouraged to develop their design skills and to develop the glass casting skills which will be required to complete the artefacts designs. They could, for example, produce miniature artefacts.

Outcome 3

Methods of calculating volumes of glass should be introduced to the candidate by tutor demonstration and time should be allowed for thorough experimentation.

Outcome 4

Candidates should be guided by the tutor on the production of moulds for glass casting. The tutor should also demonstrate relief moulds in clay and in the lost wax process. Candidates should get the opportunity to practise using mould materials.

Outcome 5

Casting glass artefacts should be demonstrated to the candidate by the tutor and evidence of successful casting would be the item itself, evidence for the assessment of understanding of the process may take the form of a suitable checklist. Candidates should be encouraged to critically evaluate the artefacts produced.

Learning and teaching materials should be accessible and where applicable positively promote equality and cultural diversity.

Opportunities for developing Core Skills

Some elements of the Core Skill of Problem Solving, namely planning and organising could be developed and enhanced as candidates undertake this Unit. Candidates will plan, organise and complete a task and evaluate the quality of the completed object at each stage in the production process. During Outcomes 4 and 5 when they will need to plan and organise the materials required to prepare a kiln and glass prior to firing.

Throughout the Unit candidates will require to communicate and work with others in a workshop environment. They will be required to co-operate and co-ordinate their work with others to ensure that everyone has the opportunity to use specialist equipment.

There are also elements of the Core Skill of Numeracy, namely calculation of volume which could be developed and enhanced as candidates undertake this Unit. Candidates will calculate volumes of glass in Outcome 3 to complete the task and will need to show evidence of calculating.

Candidates will be encouraged to develop their IT skills in this Unit. They have to use the internet for research purposes and should be encouraged to present their findings in word processed format. They will also be encouraged to record design development and cast development through using digital cameras.

Higher National Unit specification: support notes (cont)

Unit title: Art Glass: Warm Glass Casting

Open learning

This Unit is not suitable for Open learning due to the equipment required.

For further information and advice, please refer to the SQA document *Assessment and Quality Assurance for Open and Distance Learning* 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: Art Glass: Warm Glass Casting

In this Unit you will learn how to produce cast glass items. When you are casting glass you have to learn about casting temperatures and times, cooling (Annealing) temperatures and these times will differ for various types of glass. You will also learn of the types of glass suitable for casting. You will learn which materials are suitable for making moulds for casting.

You will also learn about investigating and researching designs and you will develop designs for cast glass objects.

You will get the opportunity to practise and experiment with moulds before you are assessed.

You will be assessed by practical projects. This will involve you producing at least three cast glass items with your tutor watching you working in the glass studio. You will also have to keep technical notes of the processes used and you will be expected to evaluate your work as you progress through the Unit.

In undertaking this Unit you will develop your Core Skills in Numeracy, IT, Working with Others and Problem Solving as you work your way through this Unit.