



Higher National Unit specification

General information for centres

Unit title: Glass Slumping: An Introduction

Unit code: F1WV 34

Unit purpose: This Unit is designed to enable candidates to develop the skills and knowledge related to the slumping of glass, including firing temperatures, annealing temperatures, types of moulds suitable for glass slumping, and firing schedules. It is suitable for candidates wishing to work in the glasswork industry.

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

- 1 Calculate firing schedules for kiln programming.
- 2 Make moulds for the purpose of glass slumping.
- 3 Produce slumped glass artefacts.

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: While access to this Unit is at the discretion of the centre, candidates should have skills in glass fusing and kiln preparation at SCQF level 6 or 7, such as F1X8 34 *Glass Fusing Techniques* or F1X7 33 *Glass Fusing: An Introduction*.

Core Skills: There are opportunities to develop the Core Skills of Problem Solving and Numeracy 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: This Unit will be assessed through practical activities with accompanying written firing schedules and sketched designs. The practical activities should involve the candidate producing glass artefacts without gaseous bubbles or devitrification type marks to a minimum glass thickness of 4 mm. Health and Safety procedures must be adhered to throughout.

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

Calculate firing schedules for kiln programming

Knowledge and/or Skills

- ◆ Slumping temperatures
- ◆ Annealing temperatures
- ◆ Calculation of surface areas
- ◆ Calculation of firing schedules
- ◆ Kiln programming
- ◆ Types of glass
- ◆ Coefficient of Expansion (COE)

Evidence Requirements

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

- ◆ accurately calculate firing schedules for kiln programming within a range of 10 degrees above or below manufacturers' recommendations for the types of glass used for slumping which clearly show the correct temperatures
- ◆ soak times within a range of 5 minutes above or below manufacturer's' recommendations and correct annealing temperatures within a range of 10 degrees above or below manufacturers' recommendations for the area of glass and the types of glass used

Assessment Guidelines

This could be linked to the practical task of Outcomes 2 and 3 and may be completed on pre-printed forms or in a format devised by the candidate.

Higher National Unit specification: statement of standards (cont)

Unit title: Glass Slumping: An Introduction

Outcome 2

Make moulds for the purpose of glass slumping

Knowledge and/or Skills

- ◆ Drape moulds
- ◆ Slump moulds
- ◆ Drop out moulds
- ◆ Mould materials
- ◆ Mould production techniques
- ◆ Mould design
- ◆ Designing and sketching techniques
- ◆ Design development
- ◆ Health and safety procedures

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can select various mould materials suitable for glass slumping, draping and drop outs such as ceramic moulds, fibre moulds, clay moulds, vermiculite moulds and stainless steel.

Candidates will also need to provide evidence of the manufacture of **three** moulds of their own design — one for draping, one for slumping and one for a crop out, using a different mould material for each one. These moulds must withstand the firing process without breaking or shrinking and must be free from undercuts.

Health and safety procedures must be followed throughout and this should be evidenced by the use of an observation schedule which should be completed by the tutor supervising the practical work.

Design proposals could be evidenced using a sketch book showing design development for each item produced and could include technical notes on moulds, materials and sources.

Assessment Guidelines

This Outcome could be jointly assessed with Outcome 3. See Assessment Guideline after Outcome 3 for further guidance.

Higher National Unit specification: statement of standards (cont)

Unit title: Glass Slumping: An Introduction

Outcome 3

Produce slumped glass artefacts

Knowledge and/or Skills

- ◆ Minimum thickness of glass
- ◆ Types of glass
- ◆ Kiln programming
- ◆ Health and safety procedures

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can produce **three** glass artefacts to a minimum of 4 mm in a minimum of **three** types of glass using **three** different moulds without gaseous bubbles or devitrification type marks on the completed artefacts.

Candidate evidence should show that the candidate can program a kiln in relation to the produced firing schedules. This could be evidenced by the use of an observation schedule. Health and safety procedures must be followed throughout. This could also be evidenced by the use of an observation schedule which should be completed by the tutor supervising the practical work.

The candidate could demonstrate their ability to work in a manner which conforms to the health and safety requirements of the workshop which 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.

Assessment Guidelines

The candidate could be assessed holistically by producing three glass artefacts using the three chosen moulds. As part of the process of production, the candidate should calculate firing schedules which could be completed on pre-printed pro formas. The candidate should calculate the surface area of the glass used and produce sketches of their designs, this could also be recorded in a candidate log book/sketch book. The candidate should fire a kiln successfully to achieve the desired end result. The candidate would be required to follow health and safety guidelines throughout the Unit and this would be recorded in an observation schedule.

Administrative Information

Unit code: F1WV 34
Unit title: Glass Slumping: An Introduction
Superclass category: WF
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Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Glass Slumping: An Introduction

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 forms part of the HNC/HND Art Glass Production Group Awards frameworks where it is a mandatory Unit. The kind of mould materials which should be used would include: ceramic moulds, fibre moulds, fibre board, clay, vermiculite and stainless steel.

The types of glass which should be used would include: Float, Spectrum, Bullseye and any other flat glass.

Health and safety procedures must include the wearing of Personal Protective Equipment (PPE) and the Control of Substances Hazardous to Health (COSHH).

Guidance on the delivery and assessment of this Unit

This Unit may be delivered as a stand alone Unit or be integrated with another appropriate Unit.

Outcome 1

The basic methods of calculating firing schedules should be introduced to the candidate by tutor demonstration and time should be allowed for thorough experimentation.

Outcome 2

Candidates should be guided by the tutor towards suitable mould materials for a project of this type and exemplars may be useful at this stage. Candidates should be guided by the Tutor on mould design. Candidate's developments should show clear links to source material and finished design solution.

Outcome 3

Slumped glass artefacts should be demonstrated to the candidate by the Tutor and evidence of successful slumping, draping and drop outs would be the items themselves, evidence for the assessment of understanding of the process and health and safety may take the form of a suitable checklist.

The Health and Safety at Work Act (HASAW), Control of Substances Hazardous to Health (COSHH) and Personal Protective Equipment (PPE) should be explained to the candidate by the Tutor using written teaching notes.

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

Higher National Unit specification: support notes (cont)

Unit title: Glass Slumping: An Introduction

Opportunities for developing Core Skills

An element 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. They will do this during Outcomes 2 and 3 when they will respond to a design problem which requires them to source suitable material, collate information, develop concepts and produce a finished design solution.

There is also an element of the Core Skill of Numeracy, namely calculation of surface areas and firing schedules which could be developed and enhanced as candidates undertake this Unit. Candidates will calculate firing schedules and surface areas in Outcome 1.

Open learning

This Unit is not suitable for Open Learning due to the equipment and workshop health and safety requirements inherent in the process.

For further information and advice, please refer to the SQA document *Assessment and Quality Assurance for Open and Distance Learning* (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: Glass Slumping: An Introduction

This Unit is designed to give you the knowledge and ability to slump, drape and drop out glass, calculate firing schedules, program kilns and select suitable materials for moulds which may be used in the process of slumping, draping and drop out glass.

Throughout the Unit you will pay due care and attention to any health and safety requirements relevant to the chosen process and this will be assessed in Outcomes 2 and 3.

In Outcome 1 you will learn about slumping temperatures, annealing temperatures and how to calculate firing schedules. You will learn how to calculate the surface area of glass. You will also learn how to program a kiln, the type of glass which can be used and the importance of coefficient of expansion (COE).

In Outcome 2 you will learn to make various moulds in different materials for the purpose of glass slumping, draping and drop outs, which will be assessed using practical projects. You will also learn the health and safety precautions related to mould materials.

In Outcome 3 you will produce three glass pieces using three moulds of your design and this will be assessed by practical projects and you will learn the health and safety procedures relation to hot glass work.

In undertaking this Unit you will also develop your problem solving skills and your numeracy skills.