

Higher National Unit Specification

General information for centres

Unit title: Sign Design and Graphics: Illumination

Unit code: F07M 34

Unit purpose: The purpose of this Unit is to enable candidates to gain knowledge of lighting components and their uses in illumination projects.

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

- 1 Justify electrical components required to illuminate signage in given situations.
- 2 Justify techniques for illuminated signs in different situations.
- 3 Design and manufacture an illuminated sign and install electrical components.

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 is at the discretion of the centre; however, it is advisable that candidates should have an appreciation of a signmaking environment either through a craft level signmaking course or through relevant work experience. It would also be beneficial if candidates possessed electrical and hand wiring skills.

Core Skills: There are opportunities to develop the Core Skill of 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: The Unit could be assessed by three separate assessment events one for each Outcome. The assessment should be carried out under supervised conditions. Assessment will be through a series of case studies either fictitious or real for Outcomes 1 and 2 and a practical project for Outcome 3.

Higher National Unit specification: statement of standards

Unit title: Sign Design and Graphics: Illumination

Unit code: F07M 34

The sections of the Unit stating the Outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Outcome 1

Justify electrical components required to illuminate signage in given situations

Knowledge and skills

- ◆ Types of electrical signage
- ◆ Electrical components and their uses
- ◆ Voltage and transformers required for electrical components
- ◆ Circuit protection
- ◆ Current health and safety legislation

Evidence Requirements

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

- ◆ clearly identify five different types of sign illumination from examples given
- ◆ identify electrical components used which make it suitable for its purpose
- ◆ accurately identify and give reasons for choice of sign illumination in the given brief
- ◆ identify and justify the electrical components and fixings required for the sign illumination in the given brief
- ◆ clearly state 5 current health and safety considerations

Assessment guidelines

Case studies with associated questions could be used to elicit candidate evidence. This could take the form of an appropriate balance of structured questions, restricted response and short answers.

Candidates could be given one or a series of case studies or photographs of signs and locations with attached briefs. Case studies could be a series of signs, which are required for one building eg a hotel, each sign having specific definitive requirements. Alternatively five smaller lighting projects could be given each demanding different solutions. In both cases, candidates would be expected to justify their choice of electrical components, suitability and type of lighting. Samples could include, up lighting, neon lighting, and strip lighting including internal and external requirements.

Higher National Unit specification: statement of standards (cont)

Unit title: Sign Design and Graphics: Illumination

Outcome 2

Justify techniques for illuminating signage in different situations

Knowledge and skills

- ◆ Spotlight illumination
- ◆ Flood lights
- ◆ Measures of light spread using calculations
- ◆ Back lights
- ◆ Uplights
- ◆ Overhead light casings

Evidence Requirements

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

- ◆ clearly identify three different types of illumination to meet a given brief
- ◆ give clear justification for their choice including an outline of the properties of each chosen type of lighting
- ◆ present information to meet the brief, this information should include visuals and descriptions

Assessment guidelines

Evidence could be generated through candidates identifying components and producing a swatch board to meet a given brief. This could include photographs and descriptions of each lighting component used. The description should include a justification for the choice of components. Descriptions could be produced by word-processing which would encourage the use of IT. The use of Internet and the use of trade-based literature should be encouraged.

In order to ensure that candidates will not be able to foresee what items they will be questioned on, different case studies or examples should be given each time the outcome is assessed

Outcome 3

Design and manufacture a sign for illumination and install electrical components

Knowledge and skills

- ◆ Manufacturing techniques
- ◆ Types of suitable electrical components
- ◆ Tools and fixings
- ◆ Assembly of required components

Higher National Unit specification: statement of standards (cont)

Unit title: Sign Design and Graphics: Illumination

Evidence Requirements

Candidates will need to provide evidence to show their knowledge and skills by showing they can:

- ◆ Design and manufacture a sign in response to a given brief using suitable materials. This evidence should include:
 - a scaled drawing showing a built up sign frame, front and side elevations, wiring diagram and all positioning and fixing points
 - a list of suitable electrical components which meets the given brief
 - a justification of the choice of electrical components used

- ◆ The candidate should be observed:
 - assembling components correctly in accordance with the scaled working drawing
 - using the correct tools for assembly
 - correctly sequencing work
 - using circuit protection in the form of a fused plug or to be wired into a fused switched outlet socket
 - finishing the sign to an acceptable standard
 - assembling components ready for testing by a qualified electrician
 - complying with current health and safety regulations and wiring regulations

Candidate performance could be recorded in an observation schedule.

Assessment guidelines

The candidates could provide evidence to demonstrate their knowledge and skills by showing that they can interpret the given brief and they can produce scale drawings showing the plan, front and side elevations of a built up sign frame, colour swatches, material samples and electrical component wiring diagrams.

The brief could be the illumination of a commercial property, or shop frontage which could incorporate either internal or external illumination. Use of power tools and machines is permitted.

Checklist would be provided by the centre.

Administrative Information

Unit code: F07M 34
Unit title: Sign Design and Graphics: Illumination
Superclass category: JB
Original date of publication: August 2006
Version: 01

History of Changes:

Version	Description of change	Date

Source: SQA

© Scottish Qualifications Authority 2006

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

Higher National Unit specification: support notes

Unit title: Sign Design and Graphics: Illumination

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 was developed as part of the Award HNC Sign Design and Graphics. Candidates choosing this Unit would benefit from having previously achieved Electrical and wiring hand skills, or prior electrical knowledge in sign illumination. NC certificate in Sign work, Graphics or equivalent.

This Unit has been written in order to increase the candidate's knowledge of manufacturing an illuminated sign including choosing the correct materials, electrical components and working to the relevant Regulations. The following topics would be taught in this Unit:

- ◆ Types of electrical signage used throughout the Sign Industry including light boxes, double sided projection boxes, illuminated fabricated letters and shaped display boxes
- ◆ Electrical components used in assembly of illuminated signage including ballast units, LED's, fluorescent light and spotlights using varies voltages and transformers.
- ◆ Current health and safety legislations and wiring regulations
- ◆ Techniques used to illuminate signage, to highlight sections of signs and displays
- ◆ Techniques of using back lights to illuminate display light boxes
- ◆ Techniques of using uprights to create concealed lighting
- ◆ Techniques of using overhead light casings with internally fitted electrics
- ◆ Learning how to assemble the electrical components
- ◆ Using tools and fixings whilst working on given projects
- ◆ Manufacturing and assembly of sign boxes including assembly of electrical components
- ◆ Circuit protection by use of a fused plug or to be wired into a fused switched outlet socket.
- ◆ Working to current Health and Safety Regulations
- ◆ Working as part of a team or working solely
- ◆ Electrical components should only be assembled to a point ready for testing by a qualified electrician

Guidance on the delivery and assessment of this Unit

In Outcome 1 the candidates could be introduced to various types of electrical components and their correct uses related to illuminating signage. This could be done by showing candidates examples ie photographs, site visits, internet research, visits to a sign manufacturer. Diagrams of component installation could be produced by the centre and all the Health and Safety considerations could be discussed in detail and researched. The use of video or DVD could also be used for Health and safety issues. Evidence for the assessment of this Outcome will be in written and photographic/drawing format.

Higher National Unit specification: support notes (cont)

Unit title: Sign Design and Graphics: Illumination

In Outcome 2 candidates could be introduced to techniques of illuminating signage of different types and location, examples of this could be shown by the use of photographs and video, or centre provided examples. Light spread details could be demonstrated in the workshop with the use of examples of illumination. Trade based literature and design literature could show good examples of illumination techniques.

Assessment of this Outcome could be carried out by candidates producing a swatch board displaying photographs, drawings, technical literature and descriptions of use with justification for their choice.

Outcome 3 could be a practical assessment which could take place after numerous demonstrations by the Lecturer of good practice of the manufacturing process and assembly of an illuminated sign including the correct use and care of tools and equipment. Students could be encouraged to make a portfolio for their own use, with photographs they have taken of commercial properties in the surrounding areas showing different illumination.

Centres should produce a checklist similar to the sample given to support the assessment of this Outcome.

Assessment will be on going and take place at the centre under controlled, supervised conditions.

Important note:

The electrical components would be assembled ready for wiring by a qualified electrician, Centres **are not** expected to wire or test electrical components, but may do so if qualified electricians are available to carry out the required wiring and testing. Candidates will not be assessed on the wiring or testing of the electrical components.

Opportunities for developing Core Skills

Throughout this Unit candidates will be developing their IT skills. In Outcome 1 they could use word processing for written evidence.

In Outcome 2 the use of digital cameras could be encouraged with candidates using computer packages to download and edit digital imagery. Word processing could again be used for written evidence.

In Outcome 3 candidates will produce a sign which could be produced using computer software, numeracy skills could be used to gain measurement and sizing of materials.

Core skills are not assessed within this unit however centres should encourage core skills where practical.

Open learning

Due to the high practical content of this Unit it is unsuitable for open or distance learning.

Higher National Unit specification: support notes (cont)

Unit title: Sign Design and Graphics: Illumination

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. 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: Sign Design and Graphics: Illumination

Many of the signs now in use are illuminated. As someone working in the sign industry, you should be familiar with the different ways of lighting up a sign and how to use lighting to draw attention to the whole sign or parts of the sign. In addition you should know about the electrical components you would need to illuminate a sign. You will learn about spot lights, flood lights, back lights and up lights and the effects created by each of these types of light.

When you are working with electricity, there are obvious health and safety issues involved and you will be expected to learn about current health and safety considerations and circuit breakers.

You will be asked to suggest lighting solutions for specific signs and you will design and make an illuminated sign in this Unit. This will involve you producing accurate drawings and choosing electrical components which will light up the sign in the way you want. You will go on to make the sign and fit the electrical components although you should not be testing the electrical components fitted. This should be done by a qualified electrician.