

Higher National Unit Specification

General information for centres

Unit title: Stage Lighting Systems 1

Unit code: DR1N 34

Unit purpose: This Unit is designed to give candidates an introduction to the processes and techniques involved in setting up and operating basic lighting equipment in the context of a live music performance. The overall structure of the Unit will provide candidates with both theoretical and practical experience of the uses of basic lighting equipment within specified music event contexts. It is primarily intended for candidates, who are involved in aspects of live events, who have no great prior knowledge of lighting. It would also be relevant to those who have experience of live sound, or similar field, whether from a music business or performance background.

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

- 1 Explain basic light and colour theory.
- 2 Explain electrical power and safety requirements.
- 3 Explain the function and features of basic lighting equipment.
- 4 Set up and operate a basic lighting system.

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: It would be beneficial if candidates had some experience of live music events. Candidates should also have good communication skills. These may be demonstrated by the achievement of Core Skill Communication at Higher level or by possession of Higher English and Communication or a suitable NQ Communication Unit (SCQF level 5/6).

Access to this Unit will be at the discretion of the centre.

Core skills: There may be opportunities to gather evidence towards Core Skills 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, whilst containing a mix of theoretical and practical knowledge and/or skills must have the emphasis placed on the practical implementation of skills and techniques.

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It is envisaged that there will be four separate assessments. However, Outcomes 1 and 2 could be combined into a single assessment event. Outcomes 3 and 4 should be assessed separately. It is unlikely Outcome 4 would be successfully assessed without a structured series of formative practice opportunities. It is suggested that candidates work in small teams to undertake this work.

Outcomes 1 and 2 will be assessed by a written report generated in response to a brief. Candidates should be given a deadline of no more than two weeks for submission of the report.

If the assessment of Outcomes 1 and 2 are combined evidence should take the form of an extended report.

Outcome 3 is to be assessed by a written report to include an 'Operational Guide' supported by wiring diagrams. Candidates should base their report on the basic types of lighting system covered through lecturer exposition. It is possible for this Outcome to be undertaken as a research project.

Outcome 4 requires observation checklists to be used to gather evidence detailing the candidates' performance whilst demonstrating practical ability in basic lighting techniques. It should be supported with the candidates' own documentation of the event ie of lighting and stage plan, desk mark-up, and production planning sheets.

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

Explain basic light and colour theory

Knowledge and/or skills

- ◆ Light theory
- ◆ Colour theory
- ◆ Colour mixing theory

Evidence Requirements

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

- ◆ describe the visible spectrum of light
- ◆ describe the impact of the colour temperature of light and the power of a light source
- ◆ describe the primary and secondary colours
- ◆ describe complementary colours
- ◆ explain additive and subtractive colour mixing

Evidence should take the form of a written report generated in response to a brief covering all of the knowledge and/or skills above. Candidates should be given a deadline of no more than two weeks for submission of the report.

Assessment guidelines

The assessment of Outcomes 1 and 2 may be combined. Evidence for the combined assessment should take the form of an extended written report covering all of the knowledge and/or skills for both Outcomes.

Although the assessment features subject matter that is predominantly theoretical, effort should be made to relate this theory to a practical context.

Should there be ambiguity regarding a candidate's response, oral questioning may be used to eliminate any doubt as to the candidate's understanding. The lecturer should note questions and responses.

Higher National Unit specification: statement of standards (cont)

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Outcome 2

Explain electrical power and safety requirements

Knowledge and/or skills

- ◆ Basic electrical supply
- ◆ Power consumption of lighting systems
- ◆ Basic electrical safety

Evidence Requirements

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

- ◆ describe the difference between single phase and three phase power supplies
- ◆ describe the relationship between power, voltage, and current
- ◆ demonstrate the calculation of the current requirements of a range of lighting systems
- ◆ describe safety practices relating to the correct use of electrical safety devices such as fuses, residual current devices and portable appliance testing
- ◆ explain how to perform practical visual testing of equipment, cabling and power sources

Evidence should take the form of a written report generated in response to a brief covering all of the knowledge and/or skills above. Candidates should be given a deadline of no more than two weeks for submission of the report.

Assessment guidelines

The assessment of Outcomes 1 and 2 may be combined. Evidence for the combined assessment should take the form of an extended written report covering all of the knowledge and/or skills for both Outcomes.

Although the assessment features subject matter that is predominantly theoretical, effort should be made to relate this theory to a practical context.

Should there be ambiguity regarding a candidate's response, oral questioning may be used to eliminate any doubt as to the candidate's understanding. The lecturer should note questions and responses.

Higher National Unit specification: statement of standards (cont)

Unit title: Stage Lighting Systems 1

Outcome 3

Explain the function and features of basic lighting equipment

Knowledge and/or skills

- ◆ Fixtures and bulbs
- ◆ Beam widths and filters
- ◆ Lighting support systems and mounts
- ◆ Powering and control of lighting
- ◆ Cabling

Evidence Requirements

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

- ◆ describe a range of lighting fixtures, their bulbs, the specifications of the fixtures and how they might be used
- ◆ describe the use of various beam widths and filters in terms of creative and technical impact
- ◆ demonstrate an understanding of the correct practices for setting up lighting support systems bearing in mind current safety guidelines
- ◆ demonstrate the correct practices for setting up and powering basic lighting control systems
- ◆ demonstrate the appropriate use of cabling in terms of current handling and safety
- ◆ specify suitable components for given requirements of a lighting system to be provided at an event
- ◆ provide an 'Operational Guide' in the form of a manual covering the correct selection and safe implementation of a system; components to include wiring diagrams, placement diagrams, checklists and fault finding procedures etc

Evidence for this Outcome should be gathered in the form of a written report which should include an 'Operational Guide' supported by wiring diagrams. Candidates should base their report on the basic types of lighting system as covered through lecturer exposition.

The 'Operational Guide' should be the basis of the practices to be followed in Outcome 4. Emphasis must be placed on the professional abilities expected of a lighting technician, including planning, communication and equipment handling.

It is possible for this Outcome to be undertaken as a research project. It is essential that the candidate meet all areas described within the evidence requirements.

Higher National Unit specification: statement of standards (cont)

Unit title: Stage Lighting Systems 1

Assessment guidelines

The assessment for this Outcome should not be combined with any other Outcomes.

Should there be ambiguity regarding a candidate's response, oral questioning may be used to eliminate any doubt as to the candidate's understanding. The lecturer should note questions and responses.

Outcome 4

Set up and operate a basic lighting system

Knowledge and/or skills

- ◆ Plan and prepare system to meet needs of a live music event
- ◆ Work with others to arrange production of the event
- ◆ Set up and check system for proper operation and safety
- ◆ Operate system to match the technical and creative needs of the event

Evidence Requirements

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

- ◆ observe health and safety legislation when working as an individual or part of a team
- ◆ operate effectively as an individual and as a member of a team
- ◆ implement correct procedure for the use of support and rigging equipment during 'soundcheck' and 'show' phases of a live music event
- ◆ implement appropriate use of control equipment to match the performance requirements of the event
- ◆ implement use of colour to match the performance requirements of the event
- ◆ record all information on mark-up sheets as required
- ◆ handle all equipment safely and professionally before, during and after the event
- ◆ perform all duties professionally and observe protocol

Observation checklists must be used to provide evidence of the candidate's achievement of the practical elements of this assessment.

In addition the candidate will need to submit written evidence in the form of lighting and stage plan, desk mark-up, and production planning sheets. The 'Operational Guide' produced, as part of the assessment for Outcome 3, will form the basis of this practical exercise.

Centres should assess this Outcome under controlled conditions eg a specific time period allocated to the task of assembling, testing and faultfinding if not carried out for a musical event eg a gig.

Higher National Unit specification: statement of standards (cont)

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Assessment guidelines

This Outcome is concerned with the implementation of a previously prepared plan for the assembly, testing and remediation of any faults found in a basic lighting system. The assessment should follow a structured period of demonstration and practice.

The assessment for this Outcome should not be combined with any other Outcomes.

Should there be ambiguity regarding a candidate's response, oral questioning may be used to eliminate any doubt as to the candidate's understanding. The lecturer should note questions and responses.

Administrative Information

Unit code: DR1N 34
Unit title: Stage Lighting Systems 1
Superclass category: LE
Date of publication: August 2005
Version: 02

History of changes:

Version	Description of change	Date
02	Removal of Word Count.	02/06/11

Source: SQA

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Higher National Unit specification: support notes

Unit title: Stage Lighting Systems 1

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 is primarily intended to introduce candidates to the use of lighting equipment and techniques employed in live music events. The overall structure of the Unit has been developed to give candidates both theoretical and practical experience of the uses of lighting in this context. The candidate should, on completion of the Unit, be able to confidently, safely and appropriately plan, prepare and use lighting in such situations.

It is possible that some candidates may have prior experience of the use of lighting for music events. This Unit should be used as a tool to further develop the candidate's understanding of theories of light, colour, power and safety to be applied in the context of live music events. Though teamwork is of great value to this subject each candidate must have sufficient practice at each of the tasks before being assessed.

It is essential that Health and Safety legislation be complied with throughout this Unit. The concept of Risk Assessment should be introduced but is not assessable. Centres and candidates should be aware of the current legislation applicable to the following areas; Noise at Work, Electricity at Work, Manual Handling and Working at Height.

Candidates should be encouraged to research the legislation for themselves. They will find the following two websites useful: <http://www.hse.gov.uk> and <http://www.psa.org.uk>. The Health and Safety Executive website has full information on all the Health and Safety legislation, and the Production Services Agency website is the source for how the legislation impacts on the sound reinforcement industry.

Outcome 1 looks at the basic theories which would lead to candidates understanding the visible spectrum of light, ultra-violet light, primary and secondary colours, colour mixing, the colour temperature of different light sources and measures of the power of different light sources. It would be best if the theories were placed in context of the range of equipment which the candidates were likely to come across in practical situations. As far as is practicable, the range of possibilities of colour mixing should be demonstrated visually.

Outcome 2 introduces candidates to the practical methods of powering basic lighting systems in terms of single-phase mains power and three-phase mains power. It should bring out the advantages and disadvantages of the availability of each and the current that can be made available by each. This Outcome introduces the candidates to the application of Ohm's Law for the purpose of calculating the loading requirements of cabling, power supply, fuses and the system as a whole. Throughout this Outcome the candidates should be learning, applying and reinforcing electrical safety standards and practices as they apply to lighting equipment preparation and use in the context of the live music event environment.

Higher National Unit specification: support notes (cont)

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Outcome 3 introduces candidates to the range of hardware that they would be likely to use in the live music event context and the features of a selection of items within this range. The range of lighting fixtures to be covered should include PAR, profile, fresnel, floods, follow-spots, strobes, UV lights and cycloramas. The candidates should know the types of bulbs that these fixtures utilise and the peculiarities of these. The methods of mounting and adjusting these should be covered, as should techniques of focusing, using filters, gobos, and barn doors. The use of various beam widths and visible patterns of light in air for creative effect should be highlighted, as should the creative impact of smoke. The candidates should be introduced to a range of fixed and portable support systems and the correct methods of setting these up. A range of power packs, self-controlled dimming systems and dimmer packs controlled by desk should be covered. The desks could use simple A/B fader banks, flash buttons and lamp grouping. The range of cables to be covered could include TRS mains, tripped cables (cables taped together as they follow the same routes), socapex, bulgin, IEC main, and low voltage control cables. The 'Operational Guide' to be produced by the candidate should include all the steps to be followed for the correct and safe use of the equipment they are likely to utilise in the performance of Outcome 4.

Outcome 4 provides candidates with the opportunity to add to, and put into practice, the skills and knowledge learned in the previous Outcomes by performing lighting tasks at an event. It is suggested that candidates carry out the tasks involved in this Outcome in small teams, each having the opportunity to fulfil each of the key stages required. A key skill in this Outcome is the implementation of protocol when working with the performers and other event staff. It should be stressed throughout the course of the Unit what is considered to be a professional level of performance and behaviour. Candidates should be made aware that inappropriate behaviour could lead to dismissal. Candidates should be encouraged to investigate possible varieties of technique which would best complement the style of music being performed at the event.

Guidance on the delivery and assessment of this Unit

While this Unit may be delivered as a 'stand alone' Unit, it is envisaged that it will form an integral part of the HNC/D Sound Production Group Award and as such be taught in the context of the subject area. This Unit is designed to be an introduction to the uses of lighting in the live music event context. Candidates will require training in the use of the specific equipment used by the centre to undertake this Unit.

The Unit should be delivered in such a way that it gives candidates the chance to perform lighting duties at a real event. If this is not possible simulation events should emulate the problems and timescales of the real world as closely as possible to ensure the correct context.

The following is guidance for assessments:

Outcomes 1 and 2 will be based a written report generated in response to a brief covering all of the knowledge and/or skills. Candidates should be given a deadline of no more than two weeks for submission of the report.

Alternatively the assessment of Outcomes 1 and 2 may be combined. Evidence for the combined assessment should take the form of an extended report covering all of the knowledge and/or skills for both Outcomes.

Higher National Unit specification: support notes (cont)

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Outcome 3 will be based on a written report to include an ‘Operational Guide’ supported by wiring diagrams. There is no designated timescale in which the candidates must have this Outcome completed. However, as the ‘Operational Guide’ is the basis of the practical exercise in Outcome 4 it should be submitted and checked before the practical event takes place.

Outcome 4 will be based on the candidate’s practical performance and related paperwork to be submitted after the event. Evidence for the performance event should take the form of an observation checklist and written evidence in the form of lighting and stage plan, desk mark-up and production planning sheets.

Open learning

This Unit could be delivered by open or distance learning, however it would require planning by the centre to ensure the sufficiency and authenticity of candidate evidence. Delivering centres will be responsible for ensuring authenticity of candidate’s work. Video evidence of performance opportunities with witness statements might support assessment of Outcome 4.

For further information and advice please refer to *Assessment and Quality Assurance for Open and Distance Learning* (SQA, — publication code A1030).

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 Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on the SQA website www.sqa.org.uk.

General information for candidates

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This Unit is designed to give you an introduction to the processes/techniques involved in setting up and operating basic lighting equipment in the context of a live music performance. By the end of the Unit you should be able to confidently, safely and appropriately plan, prepare and use lighting in such situations.

The overall structure of the Unit will provide you with both theoretical and practical experience of the uses of basic lighting equipment within specified music event contexts. It is primarily intended for candidates who are involved in aspects of live events who have no great prior knowledge of lighting. It would also be relevant to those who have experience of live sound, or similar field, whether from a music business or performance background.

On completion of the Unit you will be able to:

- 1 Explain basic light and colour theory.
- 2 Explain electrical power and safety requirements.
- 3 Explain the function and features of basic lighting equipment.
- 4 Set up and operate a basic lighting system.

In **Outcome 1** you will learn about basic theories of light and colour. You should be able to apply these to the type of equipment you will be using and the type of events you will be lighting.

In **Outcome 2** you will learn about the practical use of mains power from single phase and three phase mains supplies and about the amount of current which can be made available by each. This Outcome introduces you to the application of Ohm's Law for the purpose of calculating the loading requirements of cabling, power supply, fuses and the system as a whole. Throughout this Outcome you should be learning, applying and reinforcing electrical safety standards and practices as they apply to lighting equipment preparation and use in the context of the live music event environment.

Outcomes 1 and 2 may be based on a written report generated in response to a brief covering all of the knowledge and/or skills. You will be given a deadline of no more than two weeks for submission of the report.

Alternatively the assessment of Outcomes 1 and 2 may be combined. Evidence for the combined assessment should take the form of an extended report covering all of the knowledge and/or skills for both Outcomes.

In **Outcome 3** you will be introduced to the range and type of component parts of a basic lighting system. You will learn how they are set up and used in the context of simple live music events. You will be trained in the use of the specific equipment used by the centre to undertake this Unit. The assessment of Outcome 3 will be based on a written report on the range of equipment you might use in the lighting of such events. The report will include a step-by-step 'Operational Guide' stating how you will go about setting up the system for your given event. Wiring diagrams will support this written guide. As the 'Operational Guide' is the basis of the practical exercise in Outcome 4 it should be submitted and checked before the practical event takes place.

General information for candidates (cont)

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In **Outcome 4** you will be asked to work with others to provide the lighting elements of the technical production of a live music event. You will be assessed through assessor observation of your performance and on the basis of the paperwork you submit as evidence of the planning processes involved.

The Unit should be delivered in such a way that it gives you the chance to perform lighting duties at a real event. If this is not possible simulation events should emulate the problems and timescales of the real world as closely as possible to ensure the correct context.