



## National Unit Specification: general information

**UNIT**      Sound Engineering and Production (SCQF level 7)

**CODE**      F78G 13

### SUMMARY

This Unit will give candidates the opportunity to develop practical and creative sound engineering and production skills which will allow them to use multi-track recording equipment to record and mix audio from a variety of sources. Candidates will use sound engineering equipment and techniques to create a multi-track recording and will then use this material to produce an edited stereo mix to a specified standard. Current sound production standards and practices will be used in conjunction with creative mixing techniques. Basic editing of the resultant mixdown will be carried out to achieve a final audio product. Candidates are also required to evaluate the production techniques used to complete the final recording.

This Unit is suitable for candidates who wish to pursue a career in sound production or audio engineering. The Unit is also suitable for those who have prior knowledge of sound engineering and production, and wish to develop their recording and mixing techniques.

### OUTCOMES

- 1    Create a multi-track recording in accordance with a given brief.
- 2    Create an edited stereo mix from a multi-track recording in accordance with a given brief.
- 3    Evaluate the production of the completed recording.

### RECOMMENDED ENTRY

Entry is at the discretion of the centre, however candidates would normally be expected to have attained the following or equivalent:

*Sound Engineering and Production (SCQF level 6)*

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#### Administrative Information

**Superclass:**      KG

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## **National Unit Specification: general information (cont)**

**UNIT**        Sound Engineering and Production (SCQF level 7)

### **CREDIT VALUE**

1 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.*

### **CORE SKILLS**

There is no automatic certification of Core Skills in this Unit.

The Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- ◆ *Problem Solving*
- ◆ *Communication*
- ◆ *Working with Others*

These opportunities are highlighted in the Support Notes of this Unit Specification.

## **National Unit Specification: statement of standards**

### **UNIT        Sound Engineering and Production (SCQF level 7)**

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

#### **OUTCOME 1**

Create a multi-track recording in accordance with a given brief.

##### **Performance Criteria**

- (a) Select appropriate microphones for the source signals.
- (b) Use mono and stereo microphone techniques effectively.
- (c) Set appropriate system gain structure and input monitoring levels for the source signals.
- (d) Effectively record sources with appropriate signal levels, quality and tracking arrangements.
- (e) Overdub tracks effectively.
- (f) Use signal dynamics control effectively.
- (g) Create and maintain an accurate recording log.

#### **OUTCOME 2**

Create an edited stereo mix from a multi-track recording in accordance with a given brief.

##### **Performance Criteria**

- (a) Apply panning and equalisation mixing techniques to achieve an even stereo balance.
- (b) Apply auxiliary channel send and return to achieve time domain effects in the mix.
- (c) Apply signal level balancing to achieve appropriate mix and output bus levels.
- (d) Create a stereo mixdown.
- (e) Use signal dynamics control effectively.
- (f) Use basic mix automation to control signals effectively.
- (g) Edit stereo mixdown to create a stereo master.
- (h) Save the stereo master.

#### **OUTCOME 3**

Evaluate the production of the completed recording.

##### **Performance Criteria**

- (a) Describe the acoustic conditions used when recording.
- (b) Describe the production techniques used in recording and mixing.
- (c) Analyse the effectiveness of production techniques used.
- (d) Suggest ways to improve future recordings.

## **National Unit Specification: statement of standards (cont)**

### **UNIT        Sound Engineering and Production (SCQF level 7)**

#### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

Product evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

##### **Outcome 1**

Each candidate will work to a given brief and produce a multi-track recording for this assessment using a minimum of:

- ◆ eight discrete recorded tracks
- ◆ four microphone sources
- ◆ one line source
- ◆ four channels using dynamics control

The recording should be of at least two minutes' duration, and at least two parts/tracks should be overdubbed.

Each track should be recorded:

- ◆ at an appropriate signal level
- ◆ with as little electrical and background noise as possible
- ◆ with appropriate EQ and mic placement to achieve acceptable tonal qualities

Candidates are also required to create and maintain a recording log. The recording log should accurately detail:

- ◆ session progress
- ◆ microphone types selected and placements
- ◆ recording times
- ◆ overdubs
- ◆ a track sheet

Product evidence should be supplemented with an Assessor Observation Checklist, detailing the candidate's ability to meet the standards specified in the Outcome and Performance Criteria.

This assessment will take place under supervised conditions at appropriate points in the Unit.

## **National Unit Specification: statement of standards (cont)**

### **UNIT**      Sound Engineering and Production (SCQF level 7)

#### **Outcome 2**

Each candidate will work to a given brief and produce a stereo mix from a multi-track recording using a minimum of:

- ◆ four channels panned
- ◆ four channels equalised
- ◆ two channels with dynamic processing
- ◆ two auxiliary time domain effect channels
- ◆ appropriate mute automation
- ◆ three channels of volume automation
- ◆ stereo bus dynamics control
- ◆ stereo bus frequency control

The mixdown should be an edited stereo master.

Product evidence should be supplemented with an Assessor Observation Checklist, detailing the candidate's ability to meet the standards specified in the Outcome and Performance Criteria.

This assessment will take place under supervised conditions at appropriate points in the Unit.

#### **Outcome 3**

Candidates are required to produce written and/or oral evidence which shows their ability to critically evaluate the recording and production techniques used in Outcomes 1 and 2.

- ◆ For PC (a) candidates must describe the way in which the acoustic conditions used influenced the recording process.

This evidence will be gathered under open-book conditions towards the end of the Unit.

## **National Unit Specification: support notes**

### **UNIT        Sound Engineering and Production (SCQF level 7)**

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 allows candidates to gain experience and competence in multi-track recording, basic digital editing techniques and applying knowledge and understanding of sound engineering and production skills.

As candidates may be expected to set up and dismantle equipment, industry conventions and standards on health and safety must be observed.

The use of equalisation and pan control should reflect an appropriate stereo image and frequency content with regard to the brief. The use of effects and signal balancing should be appropriate to the musical or source content and the requirements of the given brief. The use of compression/limiting processing techniques should be correct for signal dynamics control.

The use of basic automation should reflect appropriate use in relation to the other recorded audio tracks and the dynamics of the final mixdown.

The mixdown master will be edited and the creation of the final format will be correct in terms of industry standard.

When using microphones, candidates should be aware that microphone techniques and placement are critical to the capture/recording quality, and that the exact placement and application is dependent upon factors such as acoustic environment, instrumentation and performer. Mono and stereo microphone techniques should be discussed in relation to types of audio source and reproduction.

#### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

Learning and teaching should be practical and fully integrated with, and related to, audio for multimedia, musical performance or radio production with dialogue.

Useful classroom activities might include teacher/lecturer demonstrations of industry standard practice and, more generally, good working practice.

At this level candidates should be capable of independent study or work within peer groupings.

Candidates would benefit from the experience of comparing their mixes with commercial recordings of a similar genre, which would allow a technical comparison and aural discrimination of recording and production values. Candidates should continually evaluate their work and make decisions based on signal quality, quality of performance and whether or not another take/pass of the source recording is required. This on-going evaluation may provide useful information for candidates' evaluation in Outcome 3 of the completed recording.

## National Unit Specification: support notes (cont)

### UNIT        Sound Engineering and Production (SCQF level 7)

Working with musicians, producers or musical groups will require candidates to liaise closely with performers/clients/producers and show organisational, interpersonal and communication skills.

Microphone types should be discussed focusing on polar pattern, frequency response and application. Example recordings could be listened to and test recordings could be made by candidates to aid learning through practice. Different stereo capture microphone techniques should be demonstrated and discussed, such as coincident pair, spaced XY and Mid-Side in relation to the placement and spatial reproduction required. Initial practice recordings could be done in small groups to allow group evaluation and discussion to take place.

The use of equalisation and panning should be taught by listening to and analysing examples. The application of time domain effects and mix level balancing should be taught by listening to and analysing examples of different effect types and uses.

The use of compression and compressor parameters, for signal dynamic control, could be taught through lecture and practical recording exercises on a variety of signals. The use of fader, mute and automation for production technique should be introduced. The further use of automation, though not assessed, could extend to bus send, level and mute, or a processor bypass function.

Candidates should be encouraged towards independent learning and basic research to aid them with the technical evaluation for Outcome 3.

Health and safety should be integral to teaching and learning, and centres should view this holistically in any practical exercises. Candidates should be made aware that health and safety is the concern of all professionals and should adhere to current legislation.

Candidates must be aware of, and adhere at all times to the requirements of current copyright legislation in relation to the creation, performance and use of music and other forms of intellectual property.

### OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Candidates will have the opportunity to develop aspects of the Core Skill of *Problem Solving* during Outcomes 1 and 2, when they will be carrying out the task of creating and editing a recording. They will also develop aspects of *Problem Solving* as they continually evaluate their work and make decisions based on signal quality and quality of performance.

If initial practice recordings are done in small groups to allow group evaluation and discussion to take place, candidates will also have the opportunity to develop aspects of the Core Skills of *Communication* and *Working with Others*.

There are also opportunities to develop the Core Skill of *Communication* in the production of written or oral evidence for Outcome 3.

## **National Unit Specification: support notes (cont)**

### **UNIT        Sound Engineering and Production (SCQF level 7)**

#### **GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT**

A suitable method of assessment would be a project brief within which candidates undertake a series of practical exercises. The brief could, for example, detail the recording of a musical performance, Foley sound effects or speech dialogue.

The brief could specify:

- ◆ purpose and instruments/source to be recorded (eg music, Foley, or dialogue)
- ◆ recording format (eg digital file type, sampling frequency and bit depth)
- ◆ overdub source (eg could be left for candidate to organise/decide)
- ◆ type of effect to be used and where (eg reverb on percussion, delay on vocal)
- ◆ master fade in or fade out (eg 5 or 10 second)
- ◆ appropriate master output level
- ◆ type of edit required (eg top and tail)
- ◆ industry standard stereo format for submission

#### **Outcome 1: Practical exercise with session log**

Different audio sources should be routed to individual tracks of a multi-track recorder and, with the use of signal dynamic control, should be recorded at an appropriate level without distortion. An overdub to two or more tracks should be performed.

A detailed log of session running and a track sheet are required for submission and marking. The multi-track recording format should be stored on an appropriate medium for marking.

#### **Outcome 2: Practical exercise**

Equalisation, time-domain effects, signal dynamics control, panning and balancing will be used when producing the stereo mix and the piece should be assessed for the quality of production and the output bus levels. Candidates will be encouraged to compare their mixes with commercial recordings of a similar style.

The stereo audio mixdown will be edited in a manner that meets the requirements of the brief. For example, basic topping and tailing could be applied to ensure a noiseless start and end to the mix. The appropriate industry format for submission will be stated in the brief.



## **National Unit Specification: support notes (cont)**

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#### **Outcome 3: Written and/or oral exercise**

A report and/or oral presentation showing the candidate has a good technical understanding of mixing, processing and spatial reproduction in relation to professional standards. Stereo and mono microphone placement will be described in relation to source capture and required mix/spatial reproduction.

The report and/or oral presentation should include mention of the signals recorded, input dB levels and compression settings, equalisation, send effects, panning and balancing used and their effectiveness in achieving the final product. Use of automation parameters used will be described in relation to the mix production. Note that candidates should include the session log from Outcome 1 to be used for reference. A concluding final product comparison to original brief should be included and reflection on where possible improvements could be made.

This exercise should not require a word count. Lists, comparisons and diagrams should be encouraged.

Time should be allowed for any necessary re-assessment.

#### **Opportunities for the use of e-assessment**

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

#### **DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements)