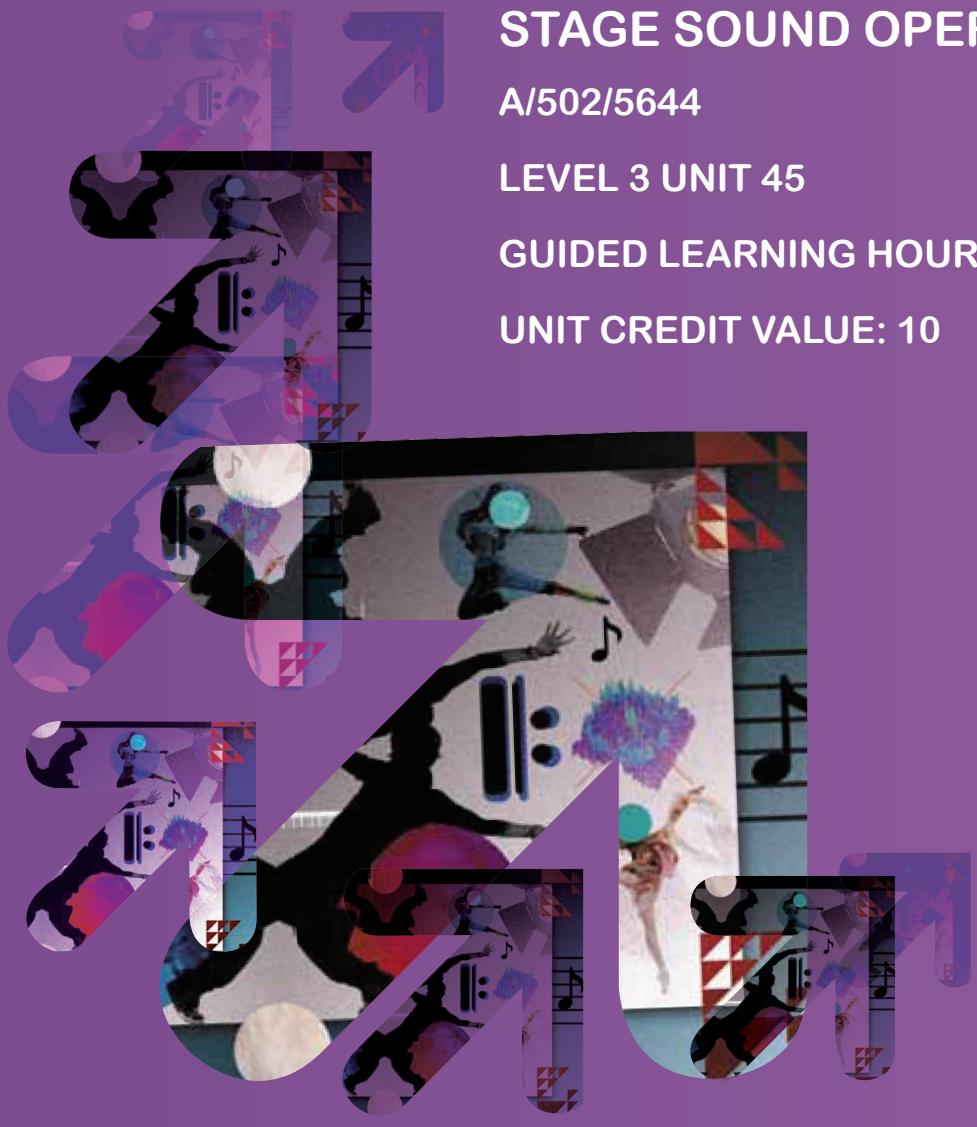
Cambridge TECHNICALS

Accredited

OCR LEVEL 3 CAMBRIDGE TECHNICAL

CERTIFICATE/DIPLOMA IN

PERFORMING ARTS



STAGE SOUND OPERATIONS

A/502/5644

LEVEL 3 UNIT 45

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR

STAGE SOUND OPERATIONS

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LEVEL 3 UNIT 45

AIM AND PURPOSE OF THE UNIT

The sound operator/production sound mixer is an integral member of any technical production team. Working in conjunction with the sound designer, the operator is responsible for the realisation of the sound design within a production. This unit gives the individual an appreciation of the role and responsibilities of the operator whilst allowing them to develop their strengths and confidence within this field. Following the initial theory element, the unit focuses primarily on a practical and 'hands on' approach to the role and responsibilities of the sound operator. Whilst it is not essential for the learner to have studied the 'Stage Sound Design' unit, the two units do complement each other and the learner may consider it beneficial to undertake both units to promote their understanding of 'Stage Sound'.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	Pass The assessment criteria are the pass requirements for this unit. The learner can:	Merit To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	Distinction To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Be able to evaluate the acoustic properties of a performance venue	P1 carry out an evaluation of the acoustic properties of a performance venue		
2 Be able to demonstrate skills in recording techniques and associated technology	P2 set up recording equipment under supervision and produce material that is fit for purpose	M1 carry out an evaluation of the material that is produced, showing an understanding of the use of sound for performance	
3 Be able to provide sound for performance	P3 select and set up appropriate PA equipment, showing an understanding of basic functions and specifications	M2 establish a checking procedure for the correct placement and installation of equipment	D1 provide a risk assessment for the placement, installation and use of sound equipment
	P4 produce sound for performance that is fit for purpose	M3 establish and carry out a sound check	D2 demonstrate a practical understanding of how to use a cue sheet

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work although these do not need to be the same ones specified in the unit content.

Be able to evaluate the acoustic properties of a performance venue

- Basics of sound theory
  Sound waves – what they are, how they are produced, how we hear them
- Speed of sound
  Frequency, wavelength
- Wave interference
  How sound waves interact, phasing, in phase, out of phase, different waves
- Amplitude, decibels, harmonics, timbre
- Resonance

Reflection of sound waves, reverberation time

- Absorption – effect of scenery, flat/hard/reflective surfaces/ sound proofing materials, full auditorium
- Consideration of acoustic advantages and disadvantages of various types of performance spaces
  Proscenium arch, end on, thrust, traverse, theatre in the round, studio, promenade, open air
- PACS the division and classification system of acoustics – physical acoustics, biological acoustics, acoustical engineering
- Consideration of the acoustics appertaining to the chosen performance space – live space, dead space
- Listening within the space, hand clap test
- How a sound system goes together:

  sound source – microphone, CD player, computer, electronic keyboard, sampler

  a mixing desk

  processors compressors, limiters, equalisers, time delay devices, echo and reverberation devices

  amplifiers

  loudspeakers.

Be able to demonstrate skills in recording techniques and associated technology

- Health and safety factors within the recording studio

Understand the purpose and control of:

- Analogue tape recorders
- Multi track recorders
- Reel to reel/cartridge machines/digital cartridge machines
- Digital systems
- Digital audio tape
- Digital multi track
- Compact disc
- Mini disc
- Hard disc recording systems
- MIDI digital sampler.

How to source and use pre-recorded cues, music and song.

Recording own sound effects/location recording/human voice/live music and song.

Understand the process of splitting tracks, alternate mixes, looping, close up recording, speed variation, echo and reverberation.

Compression, equalisation, composite effects, using a sampler, editing music and speech

Storage of effects – backing up work

Be able to provide sound for performance

- Awareness of health and safety factors when placing, moving, installing, checking and operating equipment
- Acoustic check
- How to read a ground plan of a set
- Speakers

Types of speakers, direction, positioning and mounting of speakers

- Microphones – moving coil, ribbon and capacitor/ condenser
- Directional characteristics

Omni directional, unidirectional /cardioid, bi-directional/ figure of eight, hypercardioid, super-cardioid

- Choosing the correct microphone for:

Recording in a studio, recording on location, amplification of sound located close to the loud speakers, amplification of sound remote from loud speakers.

- Wireless/radio microphones

Placing the mic and transmitter pack, positioning the aerials, setting the frequency, monitoring the signal

- Effective operating position for sound operator
- How to liaise with the director, stage manager, sound designer, other technical crew
- Positioning of equipment, documenting the sound system set-up, patching the system together
- Checking equipment, sound check
- Reading a cue sheet/sound plot
- Presetting the equipment

Control of amplification of sound, feedback reduction, control of distortion

- How cues are called – correct response
- Running announcements prior to show – interval
- Preset, pre show music or montage of sound
- Running production sound
- How to switch off, leave equipment, strike equipment
- Dealing with simple problems and faults – blown fuse, cue patched wrongly, volume control.

DELIVERY GUIDANCE

Learners should provide a SWOT analysis of their current skills prior to embarking on this unit; this will allow the tutor to modify the delivery of the unit according to the learner's experience. Tutors should deliver this unit using a variety of teaching methods including lectures, demonstrations, workshops, evaluation and discussion. However, the majority of the unit requires the learner to have 'hands on' experience. Ideally, aspects of the unit should be delivered by professional sound practitioners. Where possible tutors, should develop links with local technical/sound companies who specialise in supporting live performances and/or local theatres and performance venues thereby enabling learners to benefit from specific work experience, placements or shadowing of sound engineers/operators.

Be able to evaluate the acoustic properties of a performance venue

Tutors should deliver the fundamentals of Sound Theory using a variety of teaching methods and handouts. Learners should be further encouraged not only to take their own notes but also to read around the subject and to build up a subject specific vocabulary. Knowledge should be reinforced using both verbal and written testing methods. With tutor guidance, the learner should explore the acoustic properties of a range of rooms and spaces; this can be undertaken within the teaching building and outside. As the learner's experience of realising the acoustic properties increases they should explore the fundamental acoustic differences of a variety of performance spaces. Ideally, this should be through practical exploration within the spaces, however if this is not possible the tutor should outline and discuss the acoustic advantages and disadvantages of such spaces. The learner should be guided towards being able to evaluate the acoustic properties and possibilities of a space in terms of its potential for 'live performances'. They should be taught the basic properties and equipment used to provide a suitable sound system for a performance space and its utilisation according to the acoustic properties of the space.

Be able to demonstrate skills in recording techniques and associated technology

Before starting this element of the unit it is essential that the importance of health and safety is thoroughly covered in terms of the connection, use and movement of equipment. Learners should be introduced to the fundamentals of risk assessment.

The equipment used by the sound operator is continually being updated and will vary between studios and performance spaces. However, learners with guidance should be introduced to the fundamental types of recording and playback equipment, understanding the function, control and potential of such equipment for sound recording and production. They should, with initial guidance, explore and experiment with the possibilities of such equipment for recording and storing their 'own sound effects'.

Be able to provide sound for performance

As before, the importance of health and safety within the performance space for the sound operator should be discussed and reinforced with the learner before they undertake any responsibility or use any sound equipment.

The learner should be taught the role and responsibilities of the sound operator within the production team.

Working within a 'production space', the learner should use their knowledge from L01 and carry out an acoustic test.

Building on the coverage of Sound Theory from L01, learners should become conversant with the purpose and usage of microphones. Whilst there are many different types of microphones, the learner should understand the three basic types and their directional characteristics. Time should be spent understanding the logistics of radio/wireless mics. As these are an essential tool in many productions, it would be pertinent for the learner to have some practical experience of their usage and control.

Following discussion with the production team/tutor, they should be guided through the safe placement and patching of the required sound equipment. They should understand how to document the set up and how to run an appropriate sound check and make adjustments to the equipment accordingly. Learners should be taught and practically experience how to read and use a sound plot/cue sheet. They should understand the vocabulary and usage of 'cue calling'. Learners initially with guidance, should have some experience of producing sound for performance.

Learners should be given a basic understanding of 'common' problems' and how to deal with them. It is important that learners have some 'post show' experience; how equipment should be 'turned off' and how to 'strike' equipment.

SUGGESTED ASSESSMENT SCENARIOS AND GUIDANCE ON ASSESSMENT

Assessment and Grading Criteria P1

The learners should provide a written outline of their experience and aptitude for evaluating the acoustic properties of a performance venue. The learner will provide a detailed written evaluation of the acoustic properties of a performance space; they should make some reference to controlling the acoustics, outlining any problem areas. The written evaluation should be available for the moderator.

Assessment and Grading Criteria P2, M1

As part of a production team or to a specific remit, the learner should either produce a series of sound effects equivalent to those required within a one act play or several scenes from a Shakespeare play, e.g. Macbeth, The Tempest, Henry V. The effects should be produced with little or no guidance and the recording should be fit for purpose and available for the moderator to access. For M1 the learner should provide an evaluation of the effectiveness of the sound effects they produced. The evaluation should be in a format that is accessible to both the tutor and moderator.

Assessment and Grading Criteria P3, P4, M2, M3, D1, D2

The learner should either be working on an in house production or similar within a performance space or working to a given remit provided by the tutor. Details of the production or remit in the form of a prompt script, sound plot, cue sheets and any other relevant documentation should be available for the moderator. The remit should be of sufficient rigour and length to provide clear evidence across all the criteria.

The learner should be filmed carrying out all the requirements for P3, P4, M3 and D2. The evidence should be transferred to a DVD and formatted for the moderator to view. The DVD should provide clear evidence of the learner fulfilling the various criteria and operating as an efficient sound operator. If appropriate, the learner may wish to provide a commentary to support their work. The tutor will also provide a written evaluation of the learner's aptitude and attainment for the various criteria.

For M2 the learner should provide evidence of the checking procedure they have implemented for the placement and installation of equipment. It is expected that this will be written and include supporting diagrams. The evidence provided should be of a standard that would allow an individual with some 'sound operating' experience to carry out the placement and installation of the equipment according to the evidence provided. The evidence should be available for the moderator.

The documentation for D1 should provide clear evidence of the learner's effective approach to health and safety and include any contingency plans with regard to the equipment and sound requirements of the production/remit.

RESOURCES

Access and usage of equipment that allows the learner to fulfil the requirements of the unit.

Access to a suitable performance space which allows the learner to fulfil the requirements of the unit.

www.plasa.org

info.eu@plasa.org

www.stagejobspro.com

www.getintotheatre.org

www.wengercorp.com/construct

www.gcaudio.com/resources/howtos/roomacoustics.htlm

The Ultimate Live Sound Operator's Handbook and DVD	Bill Gibson	Hal Leonard Corporation	978-1617805592
Sound Check: Basics of Sound and Sound Systems	Tony Moscal	Hal Leonard Corporation	978-0793535590
Mixing Secrets for the Small Studio	Mike Senior	Focal Press	978-0240815800
Basic Live Sound	Paul White	Sanctuary Publishing	978-1860742712
Basic Microphones			978-1860742651
Basic Effects and Processors			978-1860742705
Basic Digital Recording			978-1860742699
Basic Mixers			978-1860742668
Basic Multi-tracking			978-1860742644
Audio Made Easy	Ira White	Hal Leonard Corporation	978-1423420149

LINKS TO NOS

Suite	Ref	National Occupational Standards
CCSSL	23	Set up and check sound equipment
CCSMP	43	Operate sound for a live performance
CCSMT	1	Follow Health and Safety practices in music and sound industries

CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.
We're always delighted to answer questions and give advice.

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