



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CUESOU04C Mix live audio**

**Revision Number: 1**

## CUESOU04C Mix live audio

### Modification History

Not applicable.

### Unit Descriptor

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit descriptor</b> | <p>This unit describes the skills and knowledge required to mix audio for live performance. As such it builds on other units dealing with the set-up and operation of audio equipment. Skills in mixing audio are developed over an extended period. This unit defines a minimum standard for the mixing of live audio.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.</p> |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Application of the Unit

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application of the unit</b> | <p>People working as sound technicians apply the skills and knowledge described in this unit. Typically they are responsible for the front-of-house mix which involves creating quality sound for an audience. The skills and knowledge associated with managing the foldback mix for performers on stage are covered in:</p> <ul style="list-style-type: none"> <li>• CUESOU11B Set up and operate stage monitor systems.</li> </ul> <p>The work often involves long or irregular hours and can be physically demanding. The ability to work cooperatively as part of a production team is essential.</p> <p>It is strongly recommended that this unit be assessed with or after the following units:</p> <ul style="list-style-type: none"> <li>• CUESOU07B Apply a general knowledge of audio to work activities</li> <li>• CUESOU10B Operate wireless audio equipment</li> <li>• CUSOU303A Set up and disassemble audio equipment</li> <li>• CUESOU03C Operate professional audio equipment.</li> </ul> <p>This unit also has linkages to other audio units and combined assessment and/or training with those units may be appropriate, e.g.:</p> <ul style="list-style-type: none"> <li>• CUESOU11B Set up and operate stage monitor systems.</li> </ul> |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

|                           |  |
|---------------------------|--|
| <b>Prerequisite units</b> |  |
|                           |  |

|                           |  |  |
|---------------------------|--|--|
| <b>Prerequisite units</b> |  |  |
|                           |  |  |

## Employability Skills Information

|                             |                                          |
|-----------------------------|------------------------------------------|
| <b>Employability skills</b> | This unit contains employability skills. |
|-----------------------------|------------------------------------------|

## Elements and Performance Criteria Pre-Content

|                                                                   |                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Elements and Performance Criteria

| ELEMENT                             | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Tune and balance audio equipment | <ul style="list-style-type: none"><li>• Power up <b>equipment</b> and check to ensure it is in working order</li><li>• Match interfaces between audio and destination in accordance with level, impedance, phase and frequency</li><li>• Route signals to correct signal path</li><li>• Operate faders to produce an audio level in accordance with production requirements</li><li>• Operate audio controls in accordance with acoustic and dynamic requirements</li><li>• Promptly identify faults and problems and take appropriate action to rectify or report to <b>relevant personnel</b></li><li>• Complete audio check, implement any required adjustments and document accurately in accordance with organisational requirements</li></ul>                                                                          |
| 2. Mix audio sources                | <ul style="list-style-type: none"><li>• Mix audio to produce the required audio level and tonal balance in accordance with production requirements</li><li>• Monitor signal paths throughout the performance</li><li>• Select <b>effects</b> in accordance with production requirements</li><li>• Adjust equalisation for required tonal balance</li><li>• Adjust relative fader levels in accordance with the musical context</li><li>• Balance signal levels appropriately</li><li>• Produce transitions between sound signals that are technically accurate and produce the required effect</li><li>• Ensure that the level of the composite signal is within technical limits and the desired dynamic range</li><li>• Maintain overall audio level in accordance with venue requirements and safe noise levels</li></ul> |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

- communicating skills sufficient to liaise with other stage technicians
- planning and organising skills to manage and monitor the mix during performance
- numeracy skills sufficient to set gain structure
- problem solving skills in the context of identifying and responding to need for adjustments to mix during performance
- technology skills to operate a mixing console

#### Required knowledge

- console types and features, both small and large FOH consoles, analogue and digital, and their mixing capabilities
- matrix and main outputs of consoles and their use
- typical mixing requirements for different types of performance, e.g. theatre, music concert
- techniques for adding sub-mixers and properly patching into system
- overview of VCA masters, and use of them
- overview of working with automation, and working with snapshot automation and cue delivery
- overview of the use SMPTE and/or MIDI to fire cues and automation
- dynamic automation factors sufficient to understand processing limitations and interface required for timed (dynamic) automation and crossfades
- overview of contemporary audio effectors and DSP effects
- overview of signal processing options and their applications, including use of signal processing as a tool for troubleshooting and creative uses for effects and signal processing

## Evidence Guide

### EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

#### Overview of assessment

#### Critical aspects for assessment and evidence required to demonstrate competency in this unit

The following evidence is critical to the judgement of competence in this unit:

- ability to use the range of console features to mix audio which meets the requirements of a production
- knowledge of specific techniques for mixing audio in different environments.

#### Context of and specific resources for assessment

The assessment context must provide for:

- practical demonstration of skills through the mixing of audio for more than one live performance/production
- involvement of and interaction with a production team to reflect the collaborative nature of the production process
- use of industry-current equipment.

#### Method of assessment

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

- evaluation of the mix at a live event where the candidate is responsible for mixing audio
- case studies to assess ability to adapt mix to different production environments
- oral or written questioning to assess knowledge of mixing techniques and equipment features
- review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Assessment methods should closely reflect workplace demands and the needs of particular groups (e.g. people with disabilities, and people who may have literacy or numeracy difficulties such as speakers of languages other than English, remote communities and those with interrupted schooling).

**EVIDENCE GUIDE****Guidance information for  
assessment**

Assessment of this unit requires access to:

- industry-current audio mixing consoles
- venue in which audio can be mixed for a live event.

## Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Equipment*** operated to mix audio must include:

- a range of microphones
- amplifier
- equaliser
- loudspeakers
- mixing consoles
- signal processor (effects units)

***Relevant personnel*** may include:

- designer
- director
- performers
- stage manager
- other technical staff

***Effects*** may include:

- compression
- distortion
- echo
- gates
- limiters
- pitch band
- reverberation

## Unit Sector(s)

|             |  |
|-------------|--|
| Unit sector |  |
|-------------|--|

## Competency field

|                  |                                                  |
|------------------|--------------------------------------------------|
| Competency field | Media and entertainment production - audio/sound |
|------------------|--------------------------------------------------|

## Co-requisite units

| Co-requisite units |  |  |
|--------------------|--|--|
|                    |  |  |
|                    |  |  |