



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

LIVE AUDIO MIXING

MPAML401

Mix live audio

Competence

RQF Level: 4

Learning Hours



90

Credits: 9

Sector: Art and Craft

Trade: Music and performing arts

Module Type: Specific

Curriculum: ARCMUS4001- TVET Certificate 4 in Music and performing arts

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Purpose statement	This module describes the performance outcomes, skills and knowledge required to mix live audio using digital or analog live mixing equipment. The student will learn how to prepare for live audio mixing, Undertake pre-show operations, mix live audio and complete post-show operations.					
Delivery modality	Training delivery		100%	Assessment		Total 100%
	Theoretical content		30%	Formative assessment	30%	50%
	Practical work:		70%		70%	
	● Group project and presentation	20%				
	● Individual project /Work	50%				
			Summative Assessment			50%

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare for live audio mixing	1. Production documentation is properly reviewed and the scope of audio mixing requirements are confirmed with relevant personnel.
	2. Audio equipment is ensured to be set up and operational in line with production requirements.
	3. Problems that could arise during shows are properly anticipated and planned accordingly.
2. Undertake pre-show operations	1. Interfaces between audio and destination are properly matched in accordance with level, impedance, phase and frequency.
	2. All inputs and outputs are properly line checked for continuity and patching and test signals are routed to correct signal paths
	3. Audio levels and controls are properly checked to meet acoustic and dynamic requirements.

	4. Actions are taken to ensure that faults and problems identified during testing are rectified promptly.
	5. Audio checks are completed and changes are documented according to organizational requirements.
	6. Front of house and monitor consoles are operated during dress rehearsals or sound checks to establish appropriate mix to produce the required technical level, tonal balances and frequency response.
	7. Audio issues are discussed with relevant personnel during sound check.
3. Mix audio sources for live shows	1. Signal control of level, equalization and dynamic parameters are properly managed to achieve a balanced sound mix.
	2. Effects are properly applied according to production requirements.
	3. Transitions between sound signals are properly produced, ensuring that they are technically right and produce the required effect.
	4. Signal levels are within technical limits and the proper dynamic range is achieved and maintained.
	5. Sound pressure levels are properly observed and managed according to venue requirements and safe noise levels.
	6. Audio operational problems are properly resolved with minimal disruption to performances.
4. Finalize work activity	1. Equipment and accessories are properly packed and stored according to safety regulations and production requirements.
	2. The work environment is properly cleaned.

Course content

Learning outcomes	<p>At the end of the module the learner will be able to:</p> <ol style="list-style-type: none"> 1. Prepare for live audio mixing 2. Undertake pre-show operations 3. Mix audio sources for live shows 4. Complete post-show operations
Learning outcome 1 Prepare for live audio mixing	Learning hours: 15
Indicative content	
<ul style="list-style-type: none"> • Review production and documentation <ul style="list-style-type: none"> ✓ Process of reading technical rider ✓ Communicating the feedback to the client • Ensure that audio equipment is set up and operational in line with production requirements <ul style="list-style-type: none"> ✓ Process of arranging equipment <ul style="list-style-type: none"> • Speaker positioning • Arrangement of instruments • Amplifier controls • Cables and connectors <ul style="list-style-type: none"> ○ Signal connectors ○ Speaker connectors ○ Multicore snake • Anticipate Problems <ul style="list-style-type: none"> ✓ Common problems risen in mixing preparation ✓ Resolve any disruption in mixing preparation 	
Resources required for the learning outcome	
Equipment	<ul style="list-style-type: none"> • Amplifiers • Audio cables • Bass • Documentation • Drum • Guitars • Instruments • Keyboards • Microphone • Mixing console • Samples • Speakers

Materials	<ul style="list-style-type: none"> •
Tools	
Facilitation techniques	<ul style="list-style-type: none"> • Demonstration on reading of technical rider • Individual Practical exercises on Reading of technical rider • Demonstration on positioning speakers and monitors • Practical exercises on positioning speakers and monitors • Demonstration on positioning main mixing console and effects rack • Practical exercises on positioning main mixing console and effects rack • Demonstration on organizing AC power • Practical exercises on organizing AC power • Demonstration on checking all equipment are turned down • Practical exercises on checking all equipment are turned down • Demonstration on putting on power • Practical exercises on putting on power • Demonstration on plugging microphones and instruments • Practical exercises on plugging microphones and instruments • Brainstorming on mixing problems • Presentation of common problems
Formative assessment methods	<ul style="list-style-type: none"> • Written evidence • Oral evidence • Performance evidence

Learning outcome 2: Undertake pre-show operations

Learning hours: 20

Indicative content

- **Match interfaces**
 - ✓ Managing crossover and speaker
 - Crossover setup
 - Active crossover
 - Passive crossover
 - Crossover features
 - ✓ Equalization and room tuning
 - Equalizer connection
 - Equalizer setup
 - ✓ Controlling the sound
 - Monitor console
 - Monitor mixing
- **Check lines**
 - ✓ Managing main mixing console
 - Label the main mixing console
- **Check audio levels**
 - ✓ Process of audio checking
 - Check all lines
 - Start mixing
 - EQ the main system
 - EQ the monitor system
 - ✓ Process of audio mixing
 - Drum
 - Bass
 - Keyboards
 - Guitars
 - Vocals
- ✓
- **A Complete audio check**
 - ✓ Process of fine tuning
- **Operate front of house and monitor consoles during dress rehearsals or sound checks to establish appropriate mix to produce the required technical level, tonal balances and frequency response**
 - ✓ Process of operating console
 - Adjust levels
 - Add effects
- ✓
- **Discuss audio issues**
 - ✓ Common operation issues

✓ Stage problems management

Resources required for the indicative content

Equipment	<ul style="list-style-type: none">• Crossover• EQ• Mixing console• Sound cables• Mixing console• Public address PA• Mixing console• EQ• Reference books• Equipment• Mixing console
Materials	<ul style="list-style-type: none">• Reference books
Tools	<ul style="list-style-type: none">•
Facilitation techniques	<ul style="list-style-type: none">• Demonstration on setting up crossover• Practical exercises on setting up crossover• Demonstration on equalization and room tuning• Practical exercises on equalization and room tuning• Demonstration on controlling sound• Practical exercises on controlling sound• Demonstration on managing main mixing console• Practical exercises on managing main mixing console• Demonstration on checking audio• Practical exercises on checking audio• Demonstration on mixing audio• Practical exercises on mixing audio• Demonstration on identifying problems• Practical exercises on identifying problems• Demonstration on fixing problems• Practical exercises on fixing problems• Demonstration on fine tuning• Practical exercises on fine tuning• Demonstration on operating console• Practical exercises on operating console• Brainstorming on operation problems• Presentation of common problems
Formative assessment methods	<ul style="list-style-type: none">• Written assessment• Oral presentation• Performance assessment

Indicative content

- **Manage signal control**
 - ✓ Panning techniques
 - ✓ mixing techniques
 - ✓ creating harmonization when applicable
 - ✓ input and output management
 - ✓ sound checking
 - drum
 - bass
 - keyboards
 - guitars
 - vocals
- **Apply effects**
 - ✓ Usage of appropriate sound effects process
 - ✓ Techniques of effects application
- **Produce transitions between sound signals to produce required effects**
 - ✓ Usage of appropriate sound effects process
 - ✓ Select appropriate effects for different signals
- **Level composite signal within technical limits**
 - ✓ Volume balance with vocals and instruments.
 - ✓ Mixing channels with added effects
 - ✓ Tuning process
- **Observe and manage sound pressure levels**
 - ✓ Out-put gain control
 - ✓ Developing the psychoacoustic principles:
 - Surround sound hearing (spatial)
 - Direct sound
 - Early sound
 - Reverberant sound
- **Resolve audio operational problems**
 - ✓ Common mixing and effects application issues

Resources required for the indicative content

Equipment	<ul style="list-style-type: none"> • Bass • Documentation • Drum • Equipment • Guitars • Instruments • Keyboards • Microphones • Mixing console • Multi effect processor
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	<ul style="list-style-type: none"> • Public address • Role play scenarios • Samples of case studies • Vocals
Materials	•
Tools	•
Facilitation techniques	<ul style="list-style-type: none"> • Demonstration on panning techniques • Practical exercises on panning techniques • Demonstration on mixing techniques • Practical exercises on mixing techniques • Demonstration on managing input and output • Practical exercises on managing input and output • Practical exercises on using multi effect processor • Practical exercises on differencing sound effects • Practical exercises on using multi effect processor • Practical exercises on differencing sound effects • Demonstration on balancing vocals and instruments • Practical exercises on balancing vocals and instruments • Demonstration on mixing channels with effects • Practical exercises on mixing channels with effects • Demonstration on controlling output gain • Practical exercises on controlling output gain • Demonstration on common mixing and effects application issues • Practical exercises on common mixing and effects application issues
Formative assessment methods	<ul style="list-style-type: none"> • Written evidence • Oral evidence • Performance evidence •

Learning outcome 4: Complete post-show operations	Learning hours: 30
Indicative content	
<ul style="list-style-type: none"> • Pack and store equipment <ul style="list-style-type: none"> ✓ Pulling down all the levels on console ✓ Pulling down all the levels on amplifiers ✓ Execute power down and disassembling ✓ Packing up • Clean work environment <ul style="list-style-type: none"> ✓ Pulling down all the levels on console ✓ Pulling down all the levels on amplifiers ✓ Execute power down and disassembling ✓ Packing up ✓ 	
Resources required for the indicative content	

Equipment	<ul style="list-style-type: none"> • Equipment • Instruments • Truck •
Materials	<ul style="list-style-type: none"> •
Tools	<ul style="list-style-type: none"> •
Facilitation techniques	<ul style="list-style-type: none"> • Demonstration on pulling down levels • Practical exercises on pulling down levels • Demonstration on packing up • Practical exercises on packing up • Demonstration on pulling down levels • Practical exercises on pulling down levels • Demonstration on packing up • Practical exercises on packing up
Formative assessment methods	<ul style="list-style-type: none"> • Written evidence • Oral evidence

Integrated/Summative assessment (For specific module)

The Organizing committee of Kigali up Festival based in Kigali City, Gasabo District, Kimihurura Sector sector has contacted you as a Sound Engineer to cover all the sound for 2018 Kigali Up Festival that will take place on 16th July 2018 at Amahoro Stadium. All the equipments and personnel needed are provided. The sound must be covered for 4 hours.

Note: You must provide a great mix of sound as required.

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome 1: (8%)	1.1	Ind.1			1
		Ind.2			20
		Ind.3			1
	1.2	Ind.1			1
		Ind.2			1
		Ind.3			1
	1.3	Ind.1			1
		Ind.2			0.5
		Ind.3			0.5
Learning outcome 2: (17%)	2.1.	Ind.1			1
		Ind.2			1
		Ind.3			1
		Ind.			
		Ind.			
	2.2.	Ind.1.			2
		Ind.2			1
		Ind.3			2
	2.3	Ind.1			2
		Ind.2			2
		Ind.3			2
	2.4	Ind.1			1

		Ind.2			1
		Ind.3			1
Learning outcome 3: (21%)	3.1	Ind.1			1
		Ind.2			1
		Ind.3			1
	3.2	Ind.1			1
		Ind.2			1
		Ind.3			1
	3.3	Ind.1			2
		Ind.2			2
		Ind.3			2
	3.4	Ind.1			2
		Ind.2			2
		Ind.3			2
	3.5	Ind.1			1
		Ind.2			1
		Ind.3			1
Learning outcome 4: (17%)	4.1.	Ind.1			1
		Ind.2			2
		Ind.3			2
	4.2.	Ind.1			2
		Ind.2			2
		Ind.3			2
	4.3	Ind.1			2
		Ind.2			3
		Ind.3			1
Learning outcome 5: (21%)		Ind.1			1
		Ind.2			1
		Ind.3			1
		Ind.1			1
		Ind.2			1
		Ind.3			1
		Ind.1			1
		Ind.2			1
		Ind.3			1
		Ind.1			1
		Ind.2			1
		Ind.3			1

	5.5	Ind.1			1
		Ind.2			1
		Ind.3			1
Total marks		100			
Percentage Weightage		100%			
Minimum Passing line % (Aggregate): 70%					

References:

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