



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

MMPLS501

LIVE SOUND REINFORCEMENT

Reinforce Live Sound

RQF Level:

5

Learning Hours



Credits:

6

Sector:

ICT and Multimedia

Trade:

Multimedia Production

Module Type:

Specific

Curriculum:

ICT MMP5001 TVET Level 5 in multimedia production

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Purpose statement	At the end of this module the trainee will be able to Install sound system equipment’s for various event, trainee will be able to monitor sound and address sound technical issues. He/she she able to maintain sound system equipment and work competitively in the multimedia world under non-directive supervision.					
Leaning assumed to be in place	N/P					
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. Install sound system	1.1. Environment is properly assessed based on event requirements.
	1.2. Equipment is properly selected based on assessed environment
	1.3. The site is properly installed according to its acoustics and audience seating arrangement.

	1.4. Audio components are correctly connected based on audio system schema/block diagram component.
2. Control sounds	2.1 Sounds are clearly monitored based sound quality.
	2.2 Sound system is properly troubleshoot based on its technical issues.
	2.3 Performers are properly guided based on stage monitoring techniques.
3. Maintain sound equipment	3.1. Sound equipment is properly dismantled and checked in line with safety and efficiency.
	3.2. Audio equipment is properly cleaned based on cleaning procedures.
	3.3. Audio equipment is properly stored based on manufacturer's instructions

Intended Knowledge, Skills and Attitude

Knowledge	Skills	Attitude
✓ Identifying Sound acoustics of different environments. ✓ Setup different sound system equipment. ✓ Describe audio equipment function. ✓ Explain clearly live reinforcement mixing techniques. ✓ Describe ways of cleaning and storing of sound system equipment.	✓ Elicit requirements. ✓ Record and mix audio. ✓ Set up, operate live sound systems. ✓ Set up live sound systems. ✓ Maintain equipment. ✓ Organize tasks and resources.	✓ Exhibit attention to detail in ensuring accurate connections and settings, with a sharp ear for subtle issues. ✓ Display adaptability by quickly finding solutions to unexpected problems, adjusting to different environments and client needs. ✓ Demonstrate professionalism by building a positive reputation, showing reliability, and taking responsibility for high-quality work. ✓ Demonstrate patience with clients by building rapport, understanding client visions, and

✓ Strong knowledge of Live mixing and recording		managing expectations effectively. ✓ Engage in continuous learning to stay updated with advancements, improving skills for professional growth. ✓ Embrace teamwork by collaborating efficiently for setup and operation, fostering creativity and innovation. ✓ Be Problem-solving orientated by Swiftly diagnosing and resolving issues, reflecting on challenges for improvement. ✓ Collaborate with team members and clients.
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Course content

Learning outcomes	At the end of the module the learner will be able to: 1. Install sound system. 2. Monitor sounds. 3. Maintain sound equipment
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Learning outcome 1: Install sound system.	Learning hours:25
Indicative content	
• Assessment of Environment. ✓ Sound system ✓ Types of PA system ✓ Types of Events ✓ Venue size and layout	

- ✓ Target audience
- ✓ Power source
- ✓ Venue Acoustic
- ✓ Logistic and set up time.
- ✓ Budget
- **Equipment selection**
 - ✓ PA input devices
 - ✓ PA output devices
 - ✓ Signal processors
 - ✓ Amplifiers
 - ✓ Cables and connectors
 - ✓ Sound system accessories
 - ✓ Rigging technique
- **Installation of Site**
 - ✓ Seating arrangement
 - ✓ Site acoustic
 -  absorption
 -  reverberation and reflection
 -  Frequency response
 -  Background noise level
- **Connection of audio component**
 - ✓ Signal source
 - ✓ Signal processing
 - ✓ Signal routing
 - ✓ Amplification
 - ✓ Loudspeakers

Resources required for the indicative content

Equipment	Headphones, Computer, Amplifier, Microphones, Sound cards, Mixing console, Audio Recorder, Top speaker, speaker, Mic stands
Materials	XLR, RCA, Jack cables, Ethernet cables, Wind shield, Pop filter, Sound proofing materials, Batteries, Power bank, Labeling materials, Audio disc, Memory card
Tools	● electrician Toolbox, Connectors, Extensions, Power bars
Facilitation techniques	- Brainstorming exercises - Trainer form groups of trainees - Trainer asks trainees to discuss about sound system, equipment selection and, and - Trainees present their work and Trainer add more clarification about it. - Trainer wraps up with question-and-answer session. - Practical exercises - Trainer asks trainee to install microphone for live performance. - Trainees checks all equipment are connected properly.
Formative assessment methods	Written assessment Performance assessment

Learning outcome 2: Monitor sounds	Learning hours: 25
Indicative content	
Monitoring of sound quality ✓ Balance ✓ Clarity ✓ Frequency response ✓ Stereo imaging ✓ Dynamic range Troubleshoot sound system.	

- ✓ Feedback interference
- ✓ No sound output.
- ✓ Hum and Noise
- ✓ Power outage
- ✓ Compatibility Issue
- ✓ Dead channel
- **Guiding Performer**
 - ✓ Personal monitor mixes
 - ✓ Wedge monitors
 - ✓ In-ear monitors
 - ✓ Sound check
 - ✓ Stage layout and placement
 - ✓ Communication with performer

Resources required for the indicative content

Equipment	Headphones, Computer, Amplifier, Microphones, Sound cards, Mixing console, Audio Recorder, Top speaker, Bass speaker, Mic stands
Materials	XLR, RCA, Jack cables, Ethernet cables, Wind shield, Pop filter, Sound proofing materials, Batteries, Power supply, Labeling materials, Audio disc, Memory card
Tools	Full electrician Toolbox, Connectors, Extensions, Power bars
Facilitation techniques	Brainstorming & practical exercises • Brainstorming 1. Trainer asks trainee to form groups. 2. Trainer asks trainee to discuss about sound monitoring. 3. Trainees prepare a presentation and interpret sound system technical issue.

	4. Trainer conducts Questions & Answers session to provide clarifications and summarize what they have learnt. • Practical exercises 1. Trainer asks trainee, to handle technical issues and troubleshoot sounds. 2. Trainees make stage monitoring techniques. 3. Trainer checks if the environmental, social and safety plan were followed/implemented by trainee while making stage monitoring.
Formative assessment methods	• Written assessment • Practical assessment

Learning outcome 3: Maintain sound equipment	Learning hours: 10
Indicative content	
• Dismantle Sound equipment. ✓ Dismantle planning. ✓ Use sound system PPE. ✓ Ensure electrical and Equipment safety. ✚ Unplugging and Disconnecting ✚ Breaking Down Equipment ✓ Storage and transportation ✓ Check equipment status condition. ✚ Equipment Release form ✚ Physical inspection ✚ Knobs, faders and switch inspection • Cleaning of audio Equipment ✓ Equipment cleaning tools ✓ Cleaning products ✓ Apply cleaning Techniques	

• Storing audio equipment ✓ Storage materials, equipment and tools ✓ Storage condition ✓ Storage techniques	
Resources required for the indicative content	
Equipment	Headphones, Computer, Amplifier, Microphones, Sound cards, Mixing console, Audio Recorder, Top speaker, Bass speaker, Mic stands
Materials	XLR, RCA, Jack cables, Ethernet cables, Wind shield, Pop filter, Sound proofing materials, Batteries, Power supply, Labeling materials, Audio disc, Memory card
Tools	Full electrician Toolbox, Connectors, Extensions, Power bars
Facilitation techniques	• Brainstorming exercise: 1. Trainer asks trainee to form groups. 2. Trainer asks trainee to discussing the importance of sound equipment maintenance and the potential risks of neglecting it. 3. Trainees share their experiences with sound equipment maintenance and any challenges they have faced. • Practical exercise 1. Trainer asks trainee to dismantling sound equipment and trainer check if they are doing well. 2. The trainees is cleaning well the audio equipment. 3. Trainer asks the trainee to store audio equipment and answer any questions they might have.
Formative assessment methods	•Written assessment •Performance assessment
Integrated/Summative assessment (For specific module)	

Integrated situation

INEZA SILVER FOUNDATION, an NGO located in Kigali, Nyarugenge is committed to realizing the rights of all children and helping them to build a strong foundation through music. The foundation has contracted you to assist in the live performance of their children.

Currently, INEZA SILVER FOUNDATION is preparing a mobilization event that will include live music performances and interviews. This event aims to encourage parents to take care of their children and nurture their talents, especially in music and dancing. The event will last for three hours and will feature two vocalists and one guitarist with an electric guitar. INEZA SILVER FOUNDATION hired you as sound technician to install sound equipment, capture the sound live music event, and close activities at good standard. This task must be completed in 8 hours.

Resources

Tools	Full electrician Toolbox, Connectors, Extensions, Power bars
Equipment	Headphones, Computer, Amplifier, Microphones, Sound cards, mixing console, Audio Recorder, Top speaker, Bass speaker, Mic stands.
Materials/ Consumables	XLR, RCA, Jack cables, Ethernet cables, Wind shield, Pop filter, Sound proofing materials, Batteries, Power supply, Labeling materials, Audio disc, Memory card

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
	1.1. Environment is assessed on event requirements	Venue is assessed			3
		Sound system is selected.			3
		Power source is identified			3
		PA system is selected			3
		PA input devices is selected.			4
		PA output devices is selected.			4

Learning outcome 1: Install sound system	1.2. equipment is selected on assessed environment	Amplifier is selected.			4
		Cables and connector are selected.			5
	1.3. The site is installed to its acoustics and audience seating arrangement.	Site acoustic is selected.			5
	1.4. Audio components are connected on audio system schema/block diagram component.	Amplification is selected.			3
		Loudspeakers are selected			3
Learning outcome 2: Monitor Sounds	2.1. Sounds are monitored on sound quality.	Balance is applied			5
		Clarity is applied			5
		Dynamic range is applied.			5
	2.2. sound system is troubleshoot on its technical issues.	Hum and Noise are avoided.			5
		Dead channel is avoided			5
	2.3. performer is guided on stage monitoring techniques.	Sound check is applied			5
		Communication with performer			5
Learning outcome 3: Maintain sound equipment	3.1. Sound equipment are dismantled and checked in line with safety and efficiency	Use sound system PPE			5
		Check equipment status condition			5
	3.2. Audio equipment are cleaned	Equipment			5
	3.3. Audio equipment are stored on manufacturer's instructions	Materials, equipment and tools			5
		Storage techniques			5

Total marks	100
Percentage Weightage	100%
Minimum Passing line % (Aggregate): 70%	

References:

1. David Miles Huber, Robert E. Runstein. (2006-10-15), Modern Recording Techniques, Focal Press/Elsevier -
2. Bobby Owsinski. (2004), The Recording Engineer's Handbook, Artistpro -
3. David Reese, Lynne Gross, Brian Gross. (2009), Audio Production Worktext: Concepts, Techniques, and Equipment, Focal Press -
4. Julian Ashbourn. (2021), Audio Technology, Music, and Media: From Sound Wave to Reproduction, Springer -
5. Claudia Barile, Caterina Casavola, Giovanni Pappalettera, Vimalathithan Paramsamy Kannan. (2023), Sound Waves and Acoustic Emission, Springer -
6. John Eargle. (2004), The Microphone Book, Second Edition: From mono to Stereo to surround - a guide to microphone design and application, Focal Press -