STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(NATIONAL OCCUPATIONAL SKILL STANDARD)

AUDIO PRODUCTION

LEVEL 3

JPK

JABATAN PEMBANGUNAN KEMAHIRAN

KEMENTERIAN SUMBER MANUSIA, MALAYSIA

TABLE OF CONTENTS

STANDARD PRACTICE

NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR;

AUDIO PRODUCTION
LEVEL 3

1. INTRODUCTION

Audio or sound is always with us in our daily life. As far as we concerned music is the product of mixed-up various types of sound or audio that can connect the different world all together.

Music is what everyone likes to listen to. To be simplified, sometimes audio and video production are correlated. Hence, there are many people used audio or sound in manipulating and making business via audio production industry.

Most of the video, film and animation makers usually used audio or music to make their products is entertaining and exciting. Therefore, audio production is a creative and versatile work.

In Malaysia, there are numerous companies which are currently active in audio production fieldwork. Audio production personnel usually involves with audio equipment and software in order to produce good quality and variety of music's genre.

Thus, personnel who are interested to enrol into this filed should meet a minimum requirement made the experts; possess SPM certificate, mentally and physically fit and have knowledge in English language would be added as advantage. Further, he or she also must have good sight and hearing senses for this fieldwork purposes.

As technology advances, new equipment emerges to meet audio production needs. The most significant advances in audio visual equipment came during the final two decades of the 20th century, when digital technology enhanced access and versatility of the audio video equipment and audio video production.

Thus, audio production industry also need to cater the changeability of audio equipments and software and the demand for skilful and experience personnel.

In order to generate skilful and experience labour or personnel in audio production industry, the NOSS is being developed. This NOSS document is structured to be used for constructing the competencies needed in the audio production fieldwork as per discussion made by the experts from the audio production industry.

Personnel who used this level 3 of NOSS will have competency in technical skill such as performing audio recording, editing, assessment and maintenance. Then, personnel also have ability basic music arrangement. Later, personnel will used this level of skill in order to gain better income based on experience, ability and organization they have been hired itself.

Further, this NOSS has arranged and developed accordingly from the discussion made by the industrial experts and based on what the industry's needs. Thus, we hope this NOSS will be usable to produce the most skilful labour or personnel for the betterment of the audio production industry and country as well.

2. OCCUPATIONAL STRUCTURE

Audio Production personnel come under the Sector Information Communication Technology and Sub-Sector of Digital Creative.

Fig. 1.1 shows the structured career path of Audio Production personnel.

SECTOR INFORMATION TECHNOLOGY & COMMUNICATION (ICT)										
SUB - SECTOR DIGITAL CREATIVE										
LEVEL	Pre-Production	Production							Post production	Mgmt/ Admin
		Creative				Technical (Camera)	Technical (Lighting)	Technical (Audio)	Creative/ Technical	
L7	Cinematographer									
L6		DOP								
L5	Producer/ Director	Production Designer				Technical Producer / Technical Director	Gaffer	Senior Audio Engineer	Director	Producer
L4	Script Writer	Art Director				Cameraman	Senior Lighting Technician	Audio Engineer	Editor	Production Manager
L3	*No level*	Assistant Art designer				camera operator	Lighting Technician	Assistant Audio Engineer	Asst Editor	Asst Production manager
L2	*No level*	Make up Artist	Set Designer	Prop Man	Wardrobe	Camera Assistant / Rigger	Lighting Assistant	Audio Technician	Graphic Artist	production Coordinator
L1	*No level*									

Figure 1.1 Occupational Profile for Audio Production personnel

SECTOR INFORMATION TECHNOLOGY & COMMUNICATION (ICT)	
SUB – SECTOR DIGITAL CREATIVE	
L5	Audio Production
L4	Audio Production
L3	Audio Production
L2	Audio Production
L1	N/A

Figure 1.2 Occupational Area Analysis (OAA) for Audio Production personnel

3. DEFINITION OF COMPETENCY LEVEL

The NOSS is developed for various occupational areas. Candidates for certification must be assessed and trained at certain levels to substantiate competencies. Below is a guideline of each NOSS Level as defined by the Department of Skills Development, Ministry of Human Resources, Malaysia.

Malaysia Skills Certificate Level 1: (Operation and Production Level)	Competent in performing a range of varied work activities, most of which are routine and predictable.
Malaysia Skills Certificate Level 2: (Operation and Production Level)	Competent in performing a significant range of varied work activities, performed in a variety of contexts. Some of the activities are non-routine and required individual responsibility and autonomy.
Malaysia Skills Certificate Level 3: (Supervisory Level)	Competent in performing a broad range of varied work activities, performed in a variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required.
Malaysia Skills Diploma Level 4: (Executive Level)	Competent in performing a broad range of complex technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and allocation of resources is often present.
Malaysia Skills Advanced Diploma Level 5: (Managerial Level)	Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources features strongly, as do personal accountabilities for analysis, diagnosis, planning, execution and evaluation.

4. MALAYSIAN SKILL CERTIFICATION

Candidates will be awarded with Malaysia Skills Certificate (SKM) for Level 3 after being assessed, verified and fulfilled the Malaysian Skill Certification requirements.

5. JOB COMPETENCIES

An Audio Production (Level 3) is competent in performing:

- Voice Recording
- Musical Instrument Recording
- Sound Effect Recording
- Live Sound Recording
- Location Sound Recording
- Voice Editing
- Sound Effect Editing
- Music Editing
- Audio Equipment Setup Assessment
- Av Equipment Maintenance
- Music Precision

6. WORKING CONDITIONS

Audio Production personnel level 3 works according to recording label, and production house requirement. Personnel may work in recording studio or live concert under the supervision of audio engineer. In this level, personnel will be able to be technically skilful and creative in performing audio recording. They must also be meticulous in editing and maintaining the audio equipment. Personnel who are in this level should have capabilities in multitasking, be conceptualize, good communication, interpersonal skill, self-discipline and good working in group.

7. EMPLOYMENT PROSPECTS

Based on recognition towards creative industry by Malaysia government and other related agencies the need for skilled personnel from the creative industry especially for Audio Production is in highly demand.

Our audio production is recognised globally as a huge growth area and there is a need for well trained personnel at all levels. Having a suitably skilled workforce will place Malaysia as the same level with other excellent audio makers internationally. Generally, this industry is estimated as another contributor's to burst the Malaysia's economy. Hence, the demand for qualified and experienced Audio Production personnel is important as of now and may increase in the future.

The Audio Production personnel have a high employment prospect whether locally or internationally. This is because the local expertise workforce is recognised by other countries as being highly knowledgeable and skilled in Audio industry. This in turn increases the demand for skilled personnel in this field to be employed locally or internationally.

As Malaysia had identified in the 3rd Industrial Master Plan and stated in the Tenth Malaysian Plan, Multimedia through ICT will be an important enabler for Malaysia to position itself at the international level. Employment growth in the ICT industry is significant and in current demand. Personnel may have various employment opportunities working in production house, advertising agency, broadcasting agency (TV Station), Multimedia department (Large Corporation), training centre, Multinational Corporation, international airports and personal business.

8. SOURCES OF ADDITIONAL INFORMATION

Local

- Suruhanjaya Komunikasi Dan Multimedia Malaysia
  Malaysian Communications and Multimedia Commission
  Off Persiaran Multimedia,
  63000 Cyberjaya, Selangor, Malaysia
  Tel: (603) 8688 8000
  Fax: (603) 8688 1000
  Email: ccd@cmc.gov.my
  Website: www.skmm.gov.my

- Perbadanan Kemajuan Filem Nasional Malaysia (FINAS)
  Kompleks Studio Merdeka, Jalan Hulu Kelang,
  68000 Ampang, Selangor, Malaysia.
  Tel: (603) 41041300
  Fax: (603) 41075216
  Email: am@finas.gov.my

- RTM
  Wisma TV, Angkasapuri, 50614, Kuala Lumpur.
  Tel: (03) 2282 5333
  Fax: (03) 2282 7146

International

- International Music Council (UNESCO)
  1 rue Miollis,
  75732 Paris cedex 15,
  France
  Tel: +33 1 45 68 48 50
  Fax: +33 1 45 68 48 66
  Website: http://www.imc-cim.org

9. APPROVAL DATE

The National Skills Development Board (MPKK), Ministry of Human Resources has agreed and endorsed this Standard on …….

10. ACKNOWLEDGEMENT

The Director General of DSD would like to extend his gratitude to the organisations and individuals who have been involved in developing this standard

11. COMMITTEE MEMBERS FOR DEVELOPMENT OF STANDARD PRACTICE (SP), JOB PROFILE CHART (JPC), COMPETENCY PROFILE (CP)

.

AUDIO PRODUCTION – LEVEL 3

PANEL EXPERT		
1.	Azriddin Bin Hamzah	Engineer FINAS
2.	Mohd Khirin Bin Omar	Production Director Luncai Emas Sdn Bhd
3.	Haron Bin Omar	Audio Director/Sound Designer Easyrise Productions/ASTRO
4.	Hussin Bin Omar	Juruteknik Audio Anugerah Media Network
5.	Mohd Kharizul Bin Yaakup	Producer Head Room Music
6.	Syed Rahiman Bin Syed Ghazali	Sound Coordinator Quest Animation Sdn Bhd
7.	Retnaguru Sandrakasan	Audio Video Consultant As'ad Entertainment Network Sdn Bhd
8.	Muhammad Faisal Bin Ghazali	Audio Mastering Pro-Dg Projects Sdn Bhd
9.	Lee Yoke Nam	Senior Sound Recordist Leeyam Production
10.	Hamdan Bin Adnan	Lecturer ASWARA
11.	Ahmad Faudzi Musib	Head Of Department Music Department
FACILITATOR		
1.	Saiful Anwar Bin Abu Hasan	Training Consultant International Islamic Research Academy (I-IRA) Sdn Bhd
CO-FACILITATOR		
1.	Mohd Khairullah bin Ab. Manaf	Managing Director International Islamic Research Academy (I-IRA) Sdn Bhd
2.	Rosnani Binti Arbai	Training Executive International Islamic Research Academy (I-IRA) Sdn Bhd

12. COMMITTEE MEMBERS FOR DEVELOPMENT OF CURRICULUM OF COMPETENCY UNIT (CoCu)

.

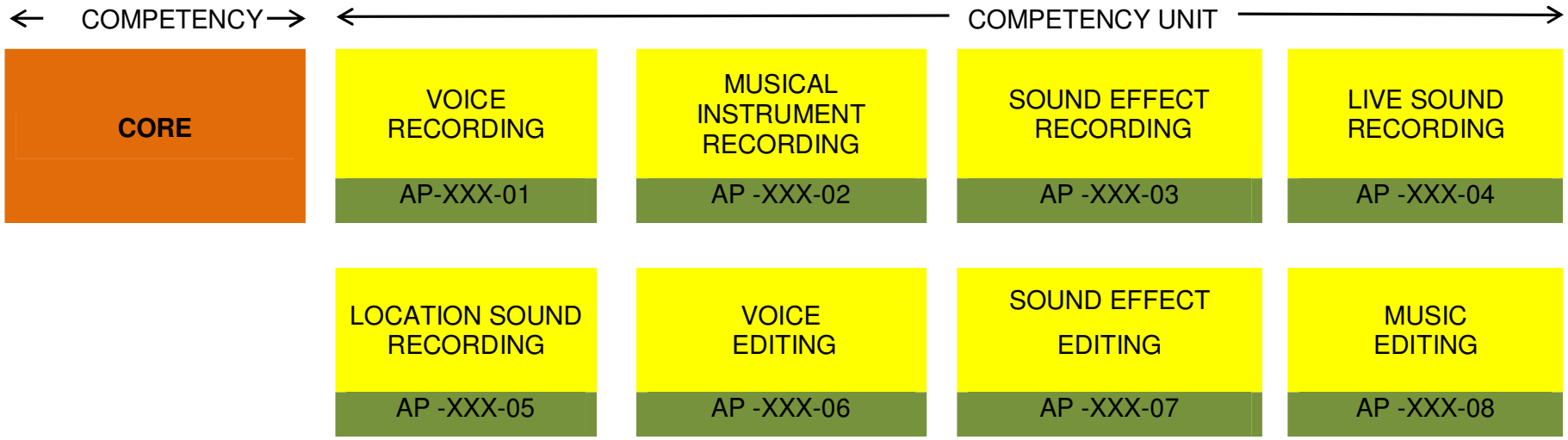
AUDIO PRODUCTION – LEVEL 3

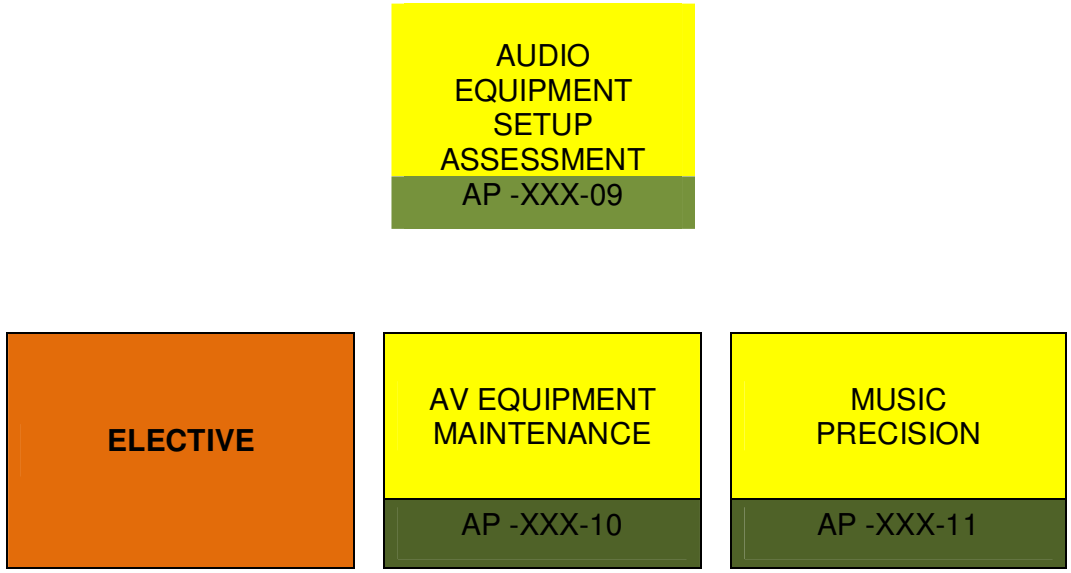
PANEL EXPERT		
1.	Azriddin Bin Hamzah	Engineer FINAS
2.	Mohd Khirin Bin Omar	Production Director Luncai Emas Sdn Bhd
3.	Haron Bin Omar	Audio Director/Sound designer Easyrise Productions/ASTRO
4.	Syed Rahiman Bin Syed Ghazali	Sound Coordinator Quest Animation Sdn Bhd
5.	Retnaguru Sandrakasan	Audio Video Consultant As'ad Entertainment Network Sdn Bhd
6.	Muhammad Faisal Bin Ghazali	Audio Mastering Pro-DG Projects Sdn Bhd
7.	Lee Yoke Nam	Senior Sound Recordist LeeYam Production
8.	Hamdan Bin Adnan	Lecturer ASWARA
9.	Ahmad Faudzi Musib	Head of Department Music Department
FACILITATOR		
1.	Saiful Anwar Bin Abu Hasan	Training Consultant International Islamic Research Academy (I-IRA) Sdn Bhd
CO-FACILITATOR		
1.	Mohd Khairullah bin Ab. Manaf	Managing Director International Islamic Research Academy (I-IRA) Sdn Bhd
2.	Rosnani Binti Arbai	Training Executive International Islamic Research Academy (I-IRA) Sdn Bhd

JOB PROFILE CHART (JPC)

SECTOR	**INFORMATION TECHNOLOGY & COMMUNICATION (ICT)**		
SUB SECTOR	**DIGITAL CREATIVE**		
JOB AREA	**AUDIO PRODUCTION**		
JOB LEVEL	**THREE(3)**	**JOB AREA CODE**	

COMPETENCY PROFILE




AUDIO
EQUIPMENT
SETUP
ASSESSMENT
AP -XXX-09
ELECTIVE
AV EQUIPMENT
MAINTENANCE
AP -XXX-10
MUSIC
PRECISION
AP -XXX-11

Sub Sector	**DIGITAL CREATIVE**
Job Area	**AUDIO PRODUCTION**
Level	**THREE(3)**

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
1. Voice Recording	AP-XXX-01	Voice recording is focusing on audio recording activities such as dialogue, voice over, narrator and singing based on the script, lyric and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line in compliance with standard specification	1. Identify job criteria for voice recording	1.1 Project criteria determined 1.2 Source voice quality determined 1.3 Microphone types selected according to voice ranges
			2. Perform microphone placement	2.1 Microphone placement determined correctly
			3. Conduct voice recording	3.1 Voice recording performed successfully
			4. Conduct voice over dubbing and error correction	4.1 Over dubbing and error correction performed successfully

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
2. Musical Instrument Recording	AP -XXX-02	Musical instrument recording is focusing on song production, film scoring, movie soundtrack, music for video and jingle production recording activities such as musical instrument, non-musical and mixing based on the music producer requirement, ability to apply listening, recording, music, miking, editing and sound judgement skills in accordance with recording label requirement in compliance with standard within the date line.	1. Identify instrumentation types	1.1 Instrumentation types determined
			2. Perform microphone and instrument matching	2.1 Microphone types selected according to instrument and ranges
			3. Perform microphone placement	3.1 Microphone placement determined correctly
			4. Perform microphone input gain level setting	4.1 Input gain level set correctly
			5. Conduct instrument recording	5.1 Instrument recording performed successfully
			6. Conduct over dubbing and error correction	6.1 Over dubbing and error correction performed successfully

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
3. Sound Effect Recording	AP -XXX-03	Sound effect recording is focusing on post production audio recording activities such as foley, sound designing and location effect based on the script or storyboard and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line in compliance with standard specification	1. Identify sound effect types	1.1 Sound effect determined 1.2 Microphone types selected according to sound effect and ranges
			2. Perform microphone placement	2.1 Microphone placement determined correctly
			3. Perform microphone input gain level setting	3.1 Input gain level set correctly
			4. Conduct sound effect recording	4.1 Sound effect recording performed successfully
			5. Conduct over dubbing and error correction	5.1 Over dubbing and error correction performed successfully

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
4. Live Sound Recording	AP -XXX-04	Live sound recording is focusing on live performance and live recording performance activities such as musical concert, sitcom, sport and events ability to apply listening, recording, miking, mixing and audio signal flow skills in accordance with client requirement in compliance with standard broadcasting specification and also Audio Engineering Society Standard	1. Identify live sound programmes/ event recording requirements	1.1 Live sound event determined
			2. Frequency ranges for microphone selection	2.1 Microphone types selected according to live sound and ranges
			3. Perform microphone placement	3.1 Microphone placement determined correctly
			4. Perform microphone input gain level setting	4.1 Input gain level set correctly
			5. Conduct live sound recording	5.1 Live sound recording performed successfully
			6. Conduct over dubbing and error correction	6.1 Over dubbing and error correction performed successfully

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
5. Location Sound Recording	AP-XXX-05	Location sound recording is focusing on recording activities such as dialogue, sound effect based on the script or storyboard and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line in compliance with standard specification	1. Identify location sound project	1.1 Location sound project determined 1.2 Microphone types selected according to location sound and ranges
			2. Perform microphone placement	2.1 Microphone placement determined correctly
			3. Perform microphone input gain level setting	3.1 Input gain level set correctly
			4. Conduct location sound recording	4.1 Location sound recording performed successfully

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
6. Voice Editing	AP-XXX-06	Voice editing is focusing on audio recording activities such as dialogue, voice over, narrator and singing based on the script, lyric and director requirements, ability to synchronise dialog track and visual apply listening, recording, and editing skills in accordance with production house requirement	1. Analyse recorded voice source 2. Perform voice editing process 3. Perform refine voice editing 4. Prepare edited voice material for premix process	1.1 Determine recorded voice to be edited 2.1 Recorded voice edited 3.1 Recorded voice refined 4.1 Edited voice material ready for premix process
7. Sound Effect Editing	AP-XXX-07	Sound effect editing is focusing on audio post production activities such as ambience sound effect, spot effect and	1. Analyse recorded sound effect	1.1 Recorded sound effect source to be edited determined

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		foley effect based on the script and director requirements, ability to synchronise sound effect track and visual apply listening, recording, and editing skills in accordance with production house requirement	2. Perform sound effect editing process 3. Perform refine sound effect editing 4. Prepare edited sound effect material for premix process	2.1 Recorded sound effect edited 3.1 Recorded sound effect refined 4.1 Edited sound effect material ready for premix process
8. Music Editing	AP-XXX-08	Music editing is focusing on song production, film scoring, movie soundtrack, music for video and jingle production activities such as sound replacement, pitch correction and noise cleaning based on the music producer	1. Analyse recorded music 2. Perform music editing process 3. Perform refine music editing	1.1 Recorded music source to be edited determined 2.1 Recorded music edited 3.1 Recorded music refined

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		requirement, ability to apply listening and sound judgement skills in accordance with music producer requirement in compliance with standard and specification.	4. Prepare edited music material for premix process	4.1 Edited music material ready for premix process
9. Audio Equipment Setup Assessment	AP-XXX-09	Audio equipment setup assessment is a process to verify audio equipment and connection setup compliance to system design in order to ensure the audio equipment are ready for use.	1. Perform audio cable setup assessment	1.1 Audio cable setup compliance to system design confirmed based on checklist
			2. Perform microphone setup assessment	2.1 Microphone setup confirmed according to checklist
			3. Perform amplifier setup assessment	3.1 Amplifier setup compliance to system design confirmed based on checklist

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			4. Perform speaker setup assessment	4.1 Speaker setup compliance to system design confirmed based on checklist
			5. Perform mixer setup assessment	5.1 Mixer setup compliance to system design confirmed based on checklist
			6. Perform recording audio devices setup assessment	6.1 Recording audio devices setup compliance to system design confirmed based on checklist
			7. Perform audio outboard setup assessment	7.1 Audio outboard setup compliance to system design confirmed based on checklist

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
10. Av Equipment Maintenance	AP-XXX-10	AV equipment maintenance is focusing on checking of equipments functionalities according to planned schedule. The personnel shall be able to carry out maintenance activities to ensure the equipments are in good conditions at the required time	1. Audio software maintenance • Hard disk backup - Digital Audio Workstation (DAW) Software backup - Project and session backup • Disk defragmentation 2. Audio hardware internal and external servicing • Input connectors servicing • Fader and knob servicing • internal cleaning for equipment and contact	1.1 Audio programme updated 2.1 Audio hardware in good working condition

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
11. Music Precision	AP -XXX-11	Music precision is focusing on selecting and performing tuning on musical instruments and the ability to tune instrument and identifying beats per minutes and tempo so that musical instrument tuned with right pitching according audio production sound quality requirements.	1. Identify musical instrument in pop band • Drum set • Bass guitar • Lead guitar • Piano & keyboard • Horn section - Trumpet - Saxophone - Trombone	1.1 Musical instrument selected and obtained
			2. Perform pitch tuning on the musical instrument	2.1 Musical instrument properly in tuned
			3. Identify music genre • Pop • R&B • Rock	3.1 Music genre determined

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			4. Identify beats and tempo	4.1 Beats per minute and tempo determined
			5. Identify melody and basic chord progression	5.1 Music arranged correctly by creating a song map

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**VOICE RECORDING**						
Competency Unit Descriptor	Voice recording is focusing on audio recording activities such as dialogue, voice over, narrator and singing based on the script, lyric and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line in compliance with standard specification						
Competency Unit ID	AP-XXX-01	**Level**	3	**Training Duration**	116 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify job criteria for voice recording	i. Types of voice recording • Dialogue • Voice over • Narrator • Singing ii. Voice quality iii. Voice types - Male voices • Countertenor • Tenor • Baritone • Bass - Female voices • Soprano			10 hours	Lecture	• Types of voice recording identified according to director requirement • Voice quality determined based on voice recording requirement • voice types and frequency ranges for microphone selected correctly

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Mezzo soprano • Contralto					according to voice recording requirement
		i. Determine types of voice recording ii. Determine voice quality iii. Identify voice types and frequency ranges for microphone selection	i. Resourceful of voice recording standard procedure ii. Adhere to proper microphone handling techniques	16 hours	Demonstration	
2. Perform microphone placement	i. Types of microphone techniques placement • Closed Miking • Usage of Windscreen / pop filter • Ambience Miking • Stereo Miking ii. Microphone stand • Boom • Straight			10 hours	Lecture	• Specific microphone selection confirmed based on the needs of the musical arrangement • Two or more microphones matched when multiple sound sources are use according to requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Clip microphone for drums iii. Phase problem solving					• Polar pattern setting is selected according to multiple microphone placement • Microphone re-positioned to solve phase problem • Phase inverse button on channel mixer pressed to solve phase problem • Isolate sound source (microphone placement) without much outboard process
		i. Select specific position for microphone placement ii. Pair two or more microphones when multiple sound sources are use iii. Set correct polar pattern for multiple microphone iv. Solve phase problems v. Isolate sound source for microphone fine position	i. Adhere to proper microphone mounting procedures	16 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Conduct voice recording	i. Sound isolation of voices ii. Audio signal compressor and gate device operation iii. Monitoring voice signal level iv. Perform recording techniques based on device mode • Operational • Audio Track assignment • Guide track assignment			14 hours	Lecture	• Recording input level set based on Voltage unit (VU) meter and peak program meter (PPM) • Sound source recorded to specified tracks • Signal processing comply with technical requirement
		i. Perform multi tracking and layering of sound source ii. Process the input voice signal with the aid of audio signal compressor and gate device if required	i. Careful in recording input set to optimum level ii. Careful of appropriate sound pressure level (SPL) for control room / cue mix iii. Careful in	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iii. Adjust voice signal level for control room / cue mix	handling electric equipment			
4. Conduct voice over dubbing and error correction	i. Overdubbing techniques • Record punch IN/OUT • Artificial Double Tracking ii. Parts and regions to overdub			12 hours	Lecture	• Correctly perform overdub process based on producer requirement • Appropriate position correctly determined for punch in • New track created from original track using copy, nudge and paste techniques • Audition and rehearsal confirmed based on producer requirement • Parts and regions to overdub correctly marked
		i. Identify tempo for punch in recording ii. Mark appropriate position for punch in iii. Copy, nudge and paste original track to new track iv. Audition & rehearsal • Adjust	i. Meticulous in overdubbing position	18 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		monitoring signal level • Record audio Signal • Save recorded track v. Identify parts and regions to overdub				

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Microphone	1:1
2. Straight Microphone stand	1:1
3. Clip microphone	1:1
4. Dialog / scrip book	1:1

References:

1. David M. Howard (2007), *Voice Science, Acoustics, and Recording*
2. Lemony; Curry, Tim Snicket (2004), *The Bad Beginning: A Multi-Voice Recording (A Series of Unfortunate Events, Book 1)*
3. James Laster (1984), *A Discography of Treble Voice Recordings*
4. Barbara McAfee and Peter Block (2011), *Full Voice: The Art and Practice of Vocal Presence (Bk Business)*
5. David Miles Huber and Robert E. Runstein (2009), *Modern Recording Techniques, Seventh Edition*
6. Bobby Owsinski (2009), *The Recording Engineer's Handbook*
7. Arthur Lessac (1996), The Use and Training of the Human Voice: *A Bio-Dynamic Approach to Vocal Life*
8. Dave Webster (2008), *Home Voice Studio: A Fast, Easy, Step-By-Step Guide To PC Voice Recording*
9. Larry Crane and Tony Visconti (2001), *Tape Op: The Book About Creative Music Recording*
10. Bruce Bartlett (2008), *Practical Recording Techniques, Fifth Edition: The Step- by- Step Approach to Professional Audio Recording*
11. Rick Clark (2010), *Mixing, Recording, and Producing Techniques of the Pros: Insights on Recording Audio for Music, Video, Film, and Games*

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**MUSICAL INSTRUMENT RECORDING**						
Competency Unit Descriptor	Musical instrument recording is focusing on song production, film scoring, movie soundtrack, music for video and jingle production recording activities such as musical instrument, non-musical and mixing based on the music producer requirement, ability to apply listening, recording, music, miking, editing and sound judgement skills in accordance with recording label requirement in compliance with standard within the date line.						
Competency Unit ID	AP -XXX-02	**Level**	3	**Training Duration**	217 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify instrumentation types	i. Types of musical instruments etc • Strings • Woodwind • Brass • Percussions - Hand percussion - Drum Kit - Timpani ii. Standard pitch tuning - A 440Hz iii. Amplified instruments - Synthesizers - Elec. Guitar			14 hours	Lecture	i. Tuning requirement of musical instruments in recording session determined according standard pitch tuning ii. Acoustic/ electro instruments selection confirmed according to recording requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	- Elec. Bass iv. Virtual Studio Technology Instruments (VSTI)					iii. Location of natural sound produced by the acoustic instruments in recording session confirmed based on miking technique
		i. Recognize the correct tuning of musical instruments in recording session ii. Identify acoustic/ electro instruments iii. Determine location of natural sound produced by the acoustic instruments in recording session	i. Resourceful of musical instrument types ii. Aware of sound source	18 hours	Demonstration	
2. Perform microphone and instrument matching	i. Tuning range of musical instruments • Strings • Woodwind • Brass • Percussions - Hand percussion - Drum Kit - Timpani			16 hours	Lecture	• Specific microphone selection confirmed based on the needs of the musical arrangement • Polar pattern setting is selected

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	ii. Sound isolation technique iii. Amplified instruments - Synthesizers - Elec. Guitar - Elec. Bass iv. Types of microphones - Condenser - Dynamic v. Types of Polar pattern - Omni directional - Cardiod - Super cardiod - Hyper cardiod - Figure of 8 vi. Stereo Miking techniques - X Y Techniques - Near Coincident - Mid Side - 3 to 1 ratio - Ambience - Instrument					according to specific instruments • Sound source separated based on instruments recording requirement • Signal spillage and circuitry noise isolated by using gate device

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	Amplifier - miking					
		i. Select specific microphone depending on the needs of the musical arrangement ii. Set correct polar pattern iii. Isolate sound source for instrument matching iv. Isolate signal with circuitry noise	i. Meticulous in setting tuning on each instruments ii. Resourceful of isolation technique	20 hours	Demonstration	
3. Perform microphone placement	i. Types of microphone techniques placement • Closed Miking • Usage of Windscreen / pop filter • Ambience Miking • Stereo Miking			16 hours	Lecture	• Specific microphone selection confirmed based on the needs of the musical arrangement • Two or more microphones matched when

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	ii. Microphone stand • Boom • Straight • Clip microphone for drums iii. Phase problem solving					multiple sound sources are use according to requirement • Polar pattern setting is selected according to multiple microphone placement • Microphone re-positioned to solve phase problem • Phase inverse button on channel mixer pressed to solve phase problem • Isolate sound source (microphone placement) without much outboard process
		i. Select specific position for microphone placement ii. Pair two or more microphones when multiple sound sources are use iii. Set correct polar pattern for multiple microphone iv. Solve phase problems v. Isolate sound source for microphone fine position	i. Careful to proper microphone handling and mounting procedures.	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Perform microphone input gain level setting	i. Monitoring signal level process • To Amplified • To Attenuate ii. Monitoring Cue Mix • Pre recorded materials • Click Track • Melody Guide iii. Check for unwanted noise			12 hours	Lecture	• Correct level before, during and after recording took place • Execute the needs of various levels for headphone mix
		i. Set the correct level before, during and after recording took place ii. Execute the needs of various levels for headphone mix	i. Operate within safe volume levels ii. Careful in cue mix process	16 hours	Demonstration	
5. Conduct instrument recording	i. Sound isolation of instruments • Single • Group ii. Audio signal compressor and gate device operation iii. Monitoring			18 hours	Lecture	• Recording input level set based on Voltage unit (VU) meter and peak program meter (PPM) • Sound source recorded to specified tracks

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	signal level iv. Perform recording techniques based on device mode • Operational • Audio Track assignment • Guide track assignment					• Signal processing comply with technical requirement
		i. Perform multi tracking and layering of sound source ii. Process the input signal with the aid of audio signal compressor and gate device if required iii. Adjust signal level for control room / cue mix	i. Careful in recording input set to optimum level ii. Careful of appropriate sound pressure level (SPL) for control room / cue mix iii. Careful in handling electric equipment	24 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
6. Conduct over dubbing and error correction	i. Overdubbing techniques • Record punch IN/OUT • Artificial Double Tracking ii. Parts and regions to overdub			18 hours	Lecture	• Correctly perform overdub process based on producer requirement • Appropriate position correctly determined for punch in • New track created from original track using copy, nudge and paste techniques • Audition and rehearsal confirmed based on producer requirement • Parts and regions to overdub correctly marked
		i. Identify tempo for punch in recording ii. Mark appropriate position for punch in iii. Copy, nudge and paste original track to new track iv. Audition & rehearsal • Adjust monitoring signal level • Record audio Signal	i. Meticulous in overdubbing position	25 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		• Save recorded track v. Identify parts and regions to overdub				

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Strings	1:2
2. Woodwind	1:2
3. Brass	1:2
4. Hand percussion	1:2
5. Drum Kit Percussions	1:2
6. Timpani Percussions	1:2
7. Synthesizers	1:2
8. Elec. Guitar	1:2
9. Elec. Bass	1:2
10. Condenser microphones	1:2
11. Dynamic microphones	1:10
12. Boom stand	1:10
13. Straight stand	1:10
14. Clip microphone stand	1:10
15. Amplifier	1:10

References:

1. Bobby Owsinski and Dennis Moody (2009), *The Drum Recording Handbook: Music Pro Guides*
2. Bill Gibson (2011), *Hal Leonard Recording Method: Book 2 - Instrument and Vocal Recording, 2nd Edition (Instrument & Vocal Recording)*
3. Bill Gibson (2004), *Sound Advice on Recording and Mixing Drums (Instantpro Book & CD)*
4. Jon Chappell (2010), *The Recording Guitarist: A Guide to Studio Gear, Techniques and Tone (Revised and Updated Edition) (Music Pro Guide Books & DVDs) (Music Pro Guides)*
5. Curt Sachs (2006), *The History of Musical Instruments*
6. Max Wade-Matthews and Wendy Thompson (2011), *The Encyclopedia of Music: Musical instruments and the art of music-making*
7. Neville H. Fletcher and Thomas D Rossing (2010) , *The Physics of Musical Instrument*

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**SOUND EFFECT RECORDING**						
Competency Unit Descriptor	Sound effect recording is focusing on post production audio recording activities such as foley, sound designing and location effect based on the script or storyboard and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line.in compliance with standard specification						
Competency Unit ID	AP -XXX-03	**Level**	3	**Training Duration**	214 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify sound effect types	i. Types of sound effects • Library effects • Recorded effects • Spot / foley effects ii. Virtual Studio Technology Instruments (VSTI)			18 hours	Lecture	i. Types of sound effects determine according to recording requirement ii. Virtual Studio Technology Instruments (VSTI) followed properly

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Determine types of sound effects ii. Perform Virtual Studio Technology Instruments (VSTI)	i. Comply with Virtual Studio Technology Instruments (VSTI) ii. Adhere to sound source	30 hours	Demonstration	
2. Perform microphone placement	i. Types of microphone techniques placement • Closed Miking • Usage of Windscreen / pop filter • Ambience Miking • Stereo Miking ii. Microphone stand • Boom • Straight • Clip microphone for drums ii. Phase problem solving			12 hours	Lecture	• Specific microphone selection confirmed based on the needs of the sound effect requirement • Two or more microphones matched when multiple sound sources are use according to requirement • Polar pattern setting is selected according to multiple microphone placement • Microphone re-
		i. Select specific position for microphone placement ii. Pair two or more	i. Adhere to proper microphone handling and mounting procedures	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		microphones when multiple sound sources are use iii. Set correct polar pattern for multiple microphone iv. Solve phase problems v. Isolate sound source for microphone fine position				positioned to solve phase problem • Phase inverse button on channel mixer pressed to solve phase problem • Isolate sound source (microphone placement) without much outboard process
3. Perform microphone input gain level setting	i. Monitoring signal level process • To amplified • To attenuate ii. Monitoring Cue Mix • Pre recorded materials • Click Track • Melody Guide iii. Check for unwanted noise			16 hours	Lecture	• Correct level before, during and after recording took place • Execute the needs of various levels for headphone mix

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Set the correct level before, during and after recording took place ii. Execute the needs of various levels for headphone mix	i. Operate within safe volume levels ii. Adhere to cue mix process	26 hours	Demonstration	
4. Conduct sound effect recording	i. Sound isolation of instruments • Single • Group ii. Audio signal compressor and gate device operation iii. Monitoring signal level iv. Perform recording techniques based on device mode • Operational • Audio Track assignment • Guide track assignment			18 hours	Lecture	• Recording input level set based on Voltage unit (VU) meter and peak program meter (PPM) • Sound source recorded to specified tracks • Signal processing comply with technical requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Perform multi tracking and layering of sound source ii. Process the input signal with the aid of audio signal compressor and gate device if required iii. Adjust signal level for control room / cue mix	i. Careful in recording input set to optimum level ii. Careful of appropriate sound pressure level (SPL) for control room / cue mix iii. Careful in handling electric equipment	26 hours	Demonstration	
5. Conduct over dubbing and error correction	i. Overdubbing techniques • Record punch IN/OUT • Artificial Double Tracking ii. Parts and regions to overdub			18 hours	Lecture	• Correctly perform overdub process based on producer requirement • Appropriate position

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Identify tempo for punch in recording ii. Mark appropriate position for punch in iii. Copy, nudge and paste original track to new track iv. Audition & rehearsal • Adjust monitoring signal level • Record audio Signal • Save recorded track v. Identify parts and regions to overdub	i. Meticulous in overdubbing position	30 hours	Demonstration	correctly determined for punch in • New track created from original track using copy, nudge and paste techniques • Audition and rehearsal confirmed based on producer requirement • Parts and regions to overdub correctly marked

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
Virtual Studio Technology Instruments (VSTI) Microphone Microphone stand	1:10 1:20 1:20

References:

1. David Sonnenschein (2002), Sound Design: The Expressive Power of Music, Voice and Sound Effects in Cinema. Michael Wiese Productions. ISBN-13: 978-0941188265
2. Alexander U. Case (2007), Sound FX: Unlocking the Creative Potential of Recording Studio Effects
3. Tomlinson Holman (2010), Sound for Film and Television, Third Edition

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**LIVE SOUND RECORDING**						
Competency Unit Descriptor	Live sound recording is focusing on live performance and live recording performance activities such as musical concert, sitcom, sport and events ability to apply listening, recording, miking, mixing and audio signal flow skills in accordance with client requirement in compliance with standard broadcasting specification and also Audio Engineering Society Standard						
Competency Unit ID	AP -XXX-04	**Level**	3	**Training Duration**	224 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify live sound programmes/ event recording requirements	i. Types of programme / events • Live Concert • Sitcom • Conference • Broadcasting • Live Concert • Lectures • Presentations ii. Tuning range of musical instruments • Strings • Woodwind • Brass			12 hours	Lecture	• Audio is recorded based on instrument or voice performance requirement • Numbers of tracks recorded is confirmed based on track availability

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Percussions - Hand percussion - Drum Kit - Timpani iii. Microphone Types and placement • Dynamic • Condenser iv. Types of Mixer • Analogue • Digital v. Signal Flow • Stereo recording • Multi-track Recording • Input Recording Level • Outboard equipment use's					
		i. Determine specific instrument or voice grouping for the various types of programme	i. Resourceful in handling mixer input gain level ii. Meticulous in	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		recording ii. Check instrument tuning aurally or using electronic tuner iii. Choose appropriate microphone type for voice or instrument iv. Determine suitable type and configuration of mixer for recording v. Determine recording on mono , stereo or multi track for recording vi. Determine use of Phase reverse button for recording vii. Determine input channel for recording	setting optimal levels into recorder			

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Frequency ranges for microphone selection	i. Frequency range for the various type of microphone ii. Amplified instruments • Synthesizers • Electric guitar • Electric bass iii. Types of microphones • Condenser • Dynamic iv. Types of polar pattern • Omni directional • Cardiod • Super cardiod • Hyper cardiod • Figure of 8 v. Stereo miking techniques • X y techniques • Near coincident • Ambience • Instrument amplifier • Miking			16 hours	Lecture	• Specific microphone selection confirmed based on the needs of the voice or musical arrangement • Polar pattern setting is selected according to specific voice or instruments • Sound source separated based on voice or instruments recording requirement • Signal spillage and circuitry noise isolated by using gate device

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Select specific microphone depending on the needs of the voice or musical instrument ii. Determine correct polar pattern iii. Isolate sound source for instrument matching iv. Isolate signal with circuitry noise	i. Meticulous in setting tuning on each instruments ii. Meticulous in microphone positioning	25 hours	Demonstration	
3. Perform microphone placement	i. Types of microphone techniques placement • Closed Miking • Usage of Windscreen / pop filter • Ambience Miking • Stereo Miking ii. Microphone stand • Boom • Straight • Clip mic for			16 hours	Lecture	• Specific microphone selection confirmed based on the needs of the musical arrangement • Two or more microphones matched when multiple sound sources are use according to requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	drums iii. Phase problem solving					• Polar pattern setting is selected according to multiple microphone placement • Microphone re-positioned to solve phase problem • Phase inverse button on channel mixer pressed to solve phase problem • Isolate sound source (microphone placement) without much outboard process
		i. Select specific position for microphone placement ii. Pair two or more microphones when multiple sound sources are use iii. Set correct polar pattern for multiple microphone iv. Solve phase problems v. Isolate sound source for microphone fine position	i. Meticulous in setting tuning on each instruments ii. Meticulous in microphone positioning	20 hours	Demonstration	
4. Perform microphone input gain level setting	i. Monitoring signal level process • To amplified • To attenuate ii. Monitoring Cue Mix • Pre recorded materials • Click Track			12 hours	Lecture	• Correct level before, during and after recording took place • Execute the needs of various levels for headphone mix

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Melody Guide iii. Check for unwanted noise					
		i. Set the correct level before, during and after recording took place ii. Execute the needs of various levels for headphone mix	i. Meticulous in setting tuning on each instruments ii. Meticulous in microphone positioning	16 hours	Demonstration	
5. Conduct live sound recording	i. Sound isolation of instruments • Single • Group ii. Audio signal compressor and gate device operation iii. Monitoring signal level iv. Perform recording techniques based on device mode • Operational • Audio track assignment • Guide track assignment			18 hours	Lecture	i. Recording input level set based on Voltage unit (VU) meter and peak program meter (PPM) ii. Sound source recorded to specified tracks iii. Signal processing comply with technical requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Perform multi tracking and layering of sound source ii. Process the input signal with the aid of audio signal compressor and gate device if required iii. Adjust signal level for control room / cue mix	i. Careful in recording input set to optimum level ii. Careful of appropriate sound pressure level (SPL) for control room / cue mix iii. Careful in handling electric equipment	26 hours	Demonstration	
6. Conduct over dubbing and error correction	i. Overdubbing techniques • Record punch IN/OUT • Artificial Double Tracking ii. Parts and regions to overdub			18 hours	Lecture	• Correctly perform overdub process based on producer requirement • Appropriate position correctly determined for

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Identify tempo for punch in recording ii. Mark appropriate position for punch in iii. Copy, nudge and paste original track to new track iv. Audition & rehearsal v. Adjust monitoring signal level vi. Record audio Signal vii. Save recorded track viii. Identify parts and regions to overdub	i. Meticulous in overdubbing position	25 hours	Demonstration	punch in • New track created from original track using copy, nudge and paste techniques • Audition and rehearsal confirmed based on producer requirement • Parts and regions to overdub correctly marked

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Strings	1:1
2. Woodwind	1:1
3. Brass	1:1
4. Percussions	1:1
5. Hand percussion	1:1
6. Timpani	1:1
7. Drum Kit	1:1
8. Dynamic Microphone	1:1
9. Condenser Microphone	1:1
10. Synthesizers	1:1
11. Electric guitar	1:1
12. Electric bass	1:1

References:

1. Paul White (Jan 1, 2006), Basic Live Sound (The Basic Series)
2. Bill Gibson (Aug 1, 2011), The Ultimate Live Sound Operators Handbook, 2nd Edition (Music Pro Guides)
3. Clive Young (Apr 1, 2004), Crank It Up: Live Sound Secrets of the Top Tour Engineers
4. Scott Hunter Stark (Dec 30, 2004), Live Sound Reinforcement, Bestseller Edition (Hardcover & DVD) (Cengage Educational)
5. Ben Duncan (Mar 1, 2002), The Live Sound Manual: Getting Great Sound at Every Gig
6. Tony Marvuglio (May 1, 2001), Live Sound Basics (Ultimate Beginner Tech Start Series)
7. Mike Sokol (Jul 11, 1997), The Acoustic Musician's Guide to Sound Reinforcement and Live Recordings

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**LOCATION SOUND RECORDING**						
Competency Unit Descriptor	Location sound recording is focusing on recording activities such as dialogue, sound effect based on the script or storyboard and director requirements, ability to apply listening, recording, miking, and editing skills in accordance with production house requirement completion within the date line in compliance with standard specification						
Competency Unit ID	AP-XXX-05	**Level**	3	**Training Duration**	146 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify location sound project	i. Types of location sound project • Dialogue • Sound effects ii. Types of frequency ranges • Very low frequency • Low frequency • Medium frequency • Super high frequency • Very high			16 hours	Lecture	• Location sound project selected according to recording requirement • Types of frequency ranges are correctly selected based on recording requirement

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	frequency • High frequency					
		i. Determine location sound project ii. Determine types of frequency ranges for microphone selection	i. Aware in determine the frequency ranges	20 hours	Demonstration	
2. Perform microphone placement	i. Types of microphone techniques placement • Closed Miking • Usage of Windscreen / pop filter • Ambience Miking • Stereo Miking ii. Microphone stand • Boom • Straight			16 hours	Lecture	• Specific microphone selection confirmed based on the needs of the musical arrangement • Two or more microphones matched when multiple sound sources are use according to requirement • Polar pattern setting is selected

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Clip microphone for drums iii. Phase problem solving					according to multiple microphone placement • Microphone re-positioned to solve phase problem • Phase inverse button on channel mixer pressed to solve phase problem • Isolate sound source (microphone placement) without much outboard process
		i. Select specific position for microphone placement ii. Pair two or more microphones when multiple sound sources are use iii. Set correct polar pattern for multiple microphone iv. Solve phase problems v. Isolate sound source for microphone fine position	i. Resourceful of microphone selected	20 hours	Demonstration	
3. Perform microphone input gain level setting	i. Monitoring signal level process • To Amplified			12 hours	Lecture	• Correct level before, during and after recording took place

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• To Attenuate ii. Monitoring Cue Mix • Pre recorded materials • Click Track • Melody Guide iii. Check for unwanted noise					• Execute the needs of various levels for headphone mix
		i. Set the correct level before, during and after recording took place ii. Execute the needs of various levels for headphone mix	i. Resourceful of signal level quality ii. Careful in cue mix process	16 hours	Demonstration	
4. Conduct location sound recording	i. Sound isolation of instruments • Single • Group ii. Audio signal compressor and gate device			18 hours	Lecture	• Recording input level set based on Voltage unit (VU) meter and peak program meter (PPM) • Sound source recorded to

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	operation iii. Monitoring signal level iv. Perform recording techniques based on device mode • Operational • Audio Track assignment • Guide track assignment					specified tracks • Signal processing comply with technical requirement
		i. Perform multi tracking and layering of sound source ii. Process the input signal with the aid of audio signal compressor and gate device if required iii. Adjust signal level for control room / cue mix	i. Careful in recording input set to optimum level ii. Careful of appropriate sound pressure level (SPL) for control room / cue mix iii. Careful in handling electric equipment	28 hours	Demonstration	

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Microphone	1:5
2. Microphone stand	1:5

References:

1. Paul Oliver (Aug 25, 2009), Barrelhouse Blues: Location Recording and the Early Traditions of the Blues
2. Bruce Bartlett and Jenny Bartlett (Dec 6, 2006), Recording Music on Location
3. John Fielden (Feb 6, 2010), "Roll Sound!": A Practical Guide for Location Audio
4. Bruce Bartlett and Jenny Bartlett (Jun 1, 1999), On Location Recording Techniques
5. Gary Gottlieb and Paul A. Hennerich IV (Jul 31, 2008); Woody Woodhall (Jul 30, 2010), Recording on the Go: The Definitive Guide to Live Recording
6. Brody Lorraine (Sep 17, 2007), Kevin Kearney: Audio Artist, Sound Designer, Analogue Location Sound Recordist

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**VOICE EDITING**						
Competency Unit Descriptor	Voice editing is focusing on audio recording activities such as dialogue, voice over, narrator and singing based on the script, lyric and director requirements, ability to synchronise dialog track and visual apply listening, recording, and editing skills in accordance with production house requirement						
Competency Unit ID	AP-XXX-06	**Level**	3	**Training Duration**	151 Hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Analyse recorded voice source	i. Types of voice source • Dialogue • Voice over • Narrator • Singing ii. Types of sound effects • Digital • Analogue iii. Types of sound quality iv. Musical instrument digital interface (MIDI) v. Position of sound effect • Dolby pro logic			15 hours	Lecture	• Voice source determined • Sound effect quality determined

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Dolby digital DTS					
		i. Identify types of voice source ii. Determine types of sound effects iii. Determine of sound quality iv. Determine Musical Instrument Digital Interface (MIDI) programs	i. Careful in recording devices handling ii. Resourceful of electrical and electronic safety handling	20 hours	Demonstration	
2. Perform voice editing process	i. Types of voice source • Dialogue • Voice over • Narrator • Singing ii. Types of sound effects • Digital • Analogue iii. Standard protocol • Musical instrument digital interface (MIDI)			20 hours	Lecture	• Sound effects created • Voice editing technique identified according to Director requirement • Desired product created based on performing artist • Recording equipment determined

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iv. Position of sound effect • Dolby pro logic • Dolby digital • DTS v. Type of microphone and frequency range vi. Type of recording equipment • Sound boards • Microphones • Sound effects • SDDS (Sony Dynamic Digital					
		i. Generate sound effects from scratch, using one's imagination to create sounds ii. Create desired product iii. Conduct recording equipment	i. Think of creative ways to mix sound or coordinate camera feeds	26 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Perform refine voice editing	i. Type of sound quality ii. Type of sound effect • Digital • Analogue iii. Position of sound effects • Dolby Pro Logic • Dolby Digital • DTS • SDDS (Sony Dynamic Digital)			15 hours	Lecture	• Position of sound effect confirmed • Sound effect synchronize produced • Different sound effect produced • Creative voice produced
		i. Determine position of the sound effects ii. Synchronize pre-recorded sound effects iii. Separate instruments, vocals, and other sounds iv. Combine sounds during the mixing or post-production stage v. Use console	i. Clean up noise or added sound effects as the scenes stories for film, videos, radio and television	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		board to adjust volume and sound quality during refine sessions vi. Refine the sound effects that have been recorded in the appropriate scenes for films, videos, radio and television vii. Implement ideas for creating sound effects in difficult situations				
4. Prepare edited voice material for premix process	i. Console Board ii. Computers equipments • Hardware • Software iii. Electronic equipment • circuit boards • processors • chips			15 hours	Lecture	• Pre-recorded sound effect produced • Creative voice produced • Audio for recording selected • Tempo for premix setup

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Labelled and placed each sound in its corresponding track • Efx 1 • Music 1 • ADR 1 ii. Use control board to coordinate and balance pre-recorded sound effects with film, video,radio and television iii. Select voice iv. Import audio into recording program v. Set tempo for premix vi. Add and re-arrange element	i. Careful in recording devices handling ii. Resourceful of electrical and electronic safety handling	20 hours	Demonstration	

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Microphone	1:5
2. Microphone stand	1:5

References:

1. Penny Penniston (Mar 1, 2010), Talk the Talk: A Dialogue Workshop for Scriptwriters
2. Tom Chiarella (Feb 15, 1998), Writing Dialogue
3. Janet Wilcox (May 1, 2007), Voiceovers (with CD): Techniques and Tactics for Success
4. David Sonnenschein (Jun 15, 2002), Sound Design: The Expressive Power of Music, Voice and Sound Effects in Cinema
5. David Lewis Yewdall (Jun 3, 2011), Practical Art of Motion Picture Sound, Fourth Edition
6. Simon Frith (Nov 12, 1981), Sound Effects
7. Paul White (Jan 1, 2006), Basic MIDI (Music Technology Series)
8. Source: Wikipedia (Aug 18, 2011), Surround sound: Dolby Digital, Sony Dynamic Digital Sound, Ambisonics, DTS, Ambisonic UHJ format, Dolby Pro Logic, Ambiophonics, 10.2
9. Simon Frith (Nov 12, 1981), Sound Effects
10. Dave S. Steinberg (Jan 15, 2000), Vibration Analysis for Electronic Equipment
11. Raghbir Singh Khandpur (Oct 26, 2006), Troubleshooting Electronic Equipment (Tab Electronics)
12. Aaron Marks (Oct 2001), The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, and Game Developers

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**SOUND EFFECT EDITING**						
Competency Unit Descriptor	Sound effect editing is focusing on audio post production activities such as ambience sound effect, spot effect and foley effect based on the script and director requirements, ability to synchronise sound effect track and visual apply listening, recording, and editing skills in accordance with production house requirement						
Competency Unit ID	AP-XXX-07	**Level**	3	**Training Duration**	122 hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Analyse recorded sound effect	i. Type of sound effect • Effects library • Foley ii. Type of recording • Film • Television • Radio • Video			10 hours	Lecture	• Sound effect determined • Sound effect for recording selected

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Identify sound effect ii. Create sound effect iii. Select type	i. Careful in sound effect selected	14 hours	Demonstration	
2. Perform sound effect editing process	i. Computers and electronics equipment ii. Types of circuit boards, processors, chips, electronic equipment iii. Computer hardware and software			12 hours	Lecture	• Computers and electronics selected according to checklist • Types of circuit boards, processors, chips, electronic equipment identified • Computer hardware and software, including applications and programming confirmed
		i. Identify computers and electronics equipment ii. Determine types of circuit boards, processors,	i. Careful in electric and electronic equipment safety procedure handling	16 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		chips, electronic equipment iii. Select computer hardware and software, including applications and programming				
3. Perform refine sound effect editing	i. Use console board to adjust volume and sound quality during refine sessions ii. Refine the sound effects that have been recorded in the appropriate scenes for films, videos, radio and television iii. Clean up noise or added sound			15 hours	Lecture	• Ideas for creating sound effects confirmed • Position of the sound effects identified • Instruments, vocals, and other sounds are correctly separated

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	effects as the scenes stories for film, videos, radio and television iv. Synchronize and equalize pre-recorded sound effects with visual action of motion pictures or television productions, using control consoles.					
		i. Implement ideas for creating sound effects in difficult situations ii. Determine the position of the sound effects • Dolby Pro Logic	i. Careful in electric and electronic equipment safety procedure handling	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		• Dolby Digital • DTS • SDDS(Sony Dynamic Dugital) iii. Separate instruments, vocals, and other sounds, and combine sounds later during the mixing or post-production stage				
4. Prepare edited sound effect material for premix process	i. Console board to adjust volume and sound quality ii. Sound effects that have been recorded iii. Noise or added sound effects iv. Pre-recorded sound effects			15 hours	Lecture	• Volume adjusted correctly using console board during refine sessions • Sound effects recorded accurately in the appropriate

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	with visual action					scenes for films, videos, radio and television • Sound effects added correctly as the scenes stories for film, videos, radio and television • Sound effects are synchronise with visual action of motion pictures or television productions, using control consoles
		i. Labelled and placed sound in its corresponding track • Efx 1 • Music 1 • ADR 1 ii. Use console board to adjust volume and sound quality iii. Refine the sound effects that have been recorded in the appropriate scenes iv. Clean up noise or added sound effects as the scenes stories v. Synchronize and equalize pre-recorded sound effects with	i. Careful in electric and electronic equipment safety procedure handling	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		visual action of motion pictures or television productions				

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Microphone 2. Microphone stand	1:5 1:5

References:

1. Robert Benedetti, Michael Brown, Bernie Laramie and Patrick Williams (May 15, 2003), Creative Postproduction: Editing, Sound, Visual Effects, and Music for Film and Video
2. David Lewis Yewdall (Jun 3, 2011), Practical Art of Motion Picture Sound, Fourth Edition
3. Marvin M. Kerner (Jan 31, 1989), The Art of the Sound Effects Editor
4. MIDI Editing in Cubase: Skill Pack by Steve Pacey (May 16, 2007)
5. Jay Rose (Oct 27, 2008), Audio Postproduction for Film and Video, Second Edition: After-the-Shoot solutions, Professional Techniques,and Cookbook Recipes to Make Your Project Sound Better (DV Expert Series)
6. Jay Rose (Dec 2002), Producing Great Sound for Digital Video
7. Richard Rickitt and Ray Harryhausen (Apr 3, 2007), Special Effects: The History and Technique

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**MUSIC EDITING**						
Competency Unit Descriptor	Music editing is focusing on song production, film scoring, movie soundtrack, music for video and jingle production activities such as sound replacement, pitch correction and noise cleaning based on the music producer requirement, ability to apply listening and sound judgement skills in accordance with music producer requirement in compliance with standard and specification.						
Competency Unit ID	AP-XXX-08	**Level**	3	**Training Duration**	158 hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Analyse recorded music	i. Type of music • Rock • Rap • Country • Hip Hop • Jazz ii. Type of recording • Film • Television • Radio • Video			18 hours	Lecture	• Types of music determined based on recording requirement • Music for recording selected correctly according to required recording
		i. Identify types of music ii. Select type of music	i. Careful in music selected	24 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iii. Determine type of recording				
2. Perform music editing process	i. Types of recorded music ii. Computers and electronics equipment iii. Types of circuit boards, processors, chips, electronic equipment iv. Computer hardware and software			20 hours	Lecture	• Types of recorded music confirmed based on recording requirement • Computers and electronics selected according to checklist • Types of circuit boards, processors, chips, electronic equipment identified • Computer hardware and software, including applications and programming confirmed
		i. Identify recorded music ii. Identify computers and electronics equipment iii. Determine types of circuit boards, processors, chips, electronic equipment iv. Select computer hardware and software, including applications and programming	i. Careful in electric and electronic equipment safety procedure handling	26 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Perform refine music editing	i. Console board to adjust volume and sound quality ii. Music that have been recorded in the appropriate scenes for films, videos, radio and television iii. Noise or added music as the scenes stories for film, videos, radio and television iv. Music with visual action of motion pictures or television productions, using control consoles			15 hours	Lecture	• Music has refined properly in the appropriate scenes for films, videos, radio and television • position of the music identified • instruments, vocals, and other sounds are correctly separated
		i. Refine music that have been recorded in the appropriate scenes for films, videos, radio and television v. Separate instruments,	i. Careful in electric and electronic equipment safety procedure handling	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		vocals, and other sounds, and combine sounds later during the mixing or post-production stage				
4. Prepare edited sound effect material for premix process	i. Console board to adjust volume and sound quality ii. Music that have been recorded iii. Noise or added music iv. Pre-recorded music with visual action			15 hours	Lecture	• Volume adjusted correctly using console board during refine sessions • Music recorded accurately in the appropriate scenes for films, videos, radio and television • Music added correctly as the scenes stories for film, videos, radio and television • Music are synchronise with visual action of motion
		i. Labelled and placed sound in its corresponding track • Efx 1 • Music 1 • ADR 1 ii. Use console board to adjust volume and sound quality iii. Refine the music that have been recorded in the appropriate scenes	i. Careful in electric and electronic equipment safety procedure handling	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iv. Clean up noise or added music as the scenes stories v. Synchronize and equalize pre-recorded music with visual action of motion pictures or television productions				pictures or television productions, using control consoles

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Microphone	1:5
2. Computers and electronics equipment	1:5
3. Circuit boards, processors, chips, electronic equipment	1:5

References:

1. Mike Collins (May 9, 2011), Pro Tools 9: Music Production, Recording, Editing, and Mixing
2. James Grier (Aug 28, 1996), The Critical Editing of Music: History, Method, and Practice
3. Robert Benedetti, Michael Brown, Bernie Laramie and Patrick Williams (May 15, 2003), Creative Postproduction: Editing, Sound, Visual Effects, and Music for Film and Video
4. Zack Price (Jan 1, 2005), The Beginner's Guide to Computer-Based Music Production
5. Mike Collins (May 11, 2009), Pro Tools 8: Music Production, Recording, Editing and Mixing
6. Robert Safir (Jan 12, 2010), Make Your Music Video and Put It Online
7. Mike Collins (Aug 28, 2004), Pro Tools for Music Production, Second Edition: Recording, Editing and Mixing
8. John Caldwell (Dec 28, 1995), Early Music (Oxford Early Music)
9. Susan Lewis-Hammond (Nov 14, 2007), Editing Music in Early Modern Germany
10. Tim Whitsett (Jun 1, 2000), Music Publishing (Mix Pro Audio Series)
11. Milton Lustig (1980), Music editing for motion pictures (Communication arts books)

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**AUDIO EQUIPMENT SETUP ASSESSMENT**						
Competency Unit Descriptor	Audio equipment setup assessment is a process to verify audio equipment and connection setup compliance to system design in order to ensure the audio equipment are ready for use.						
Competency Unit ID	AP-XXX-09	**Level**	3	**Training Duration**	299 hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Perform audio cable setup assessment	i. Types of programmes / events ii. Types of audio cables • Digital • Analogue iii. Types of connector iv. Types of adapter v. Audio signal flow			16 hours	Lecture	• Types of cabling correctly determined according to programme requirements • Types of connectors confirmed according to equipment used • Cable connect ion

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Differentiate types of programmes / events ii. Check types of cables for programme / events iii. Check types of connector iv. Check types of adapters v. Check signal flow connectivity between all input and output	i. Careful of electrical & electronic safety handling procedure	24 hours	Demonstration	to the appropriate connector confirmed • Connectors matching confirmed based on checklist • Audio line connection functionality confirmed according to audio system design
2. Perform microphone setup assessment	i. Types of programmes / events ii. Types of microphones iii. Types of polar pattern iv. Microphone frequency response v. Microphone placement			16 hours	Lecture	• Types of microphone selection confirmed according to programmes / events requirement • Microphone accessories confirmed

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	vi. Microphone testing procedure vii. Microphone operation manual					according to microphone selection • Microphone powering needs confirmed according to microphone specification • Microphone pattern confirmed based on given polar diagram • Frequency response determined based on type of source • Proper location and distance for optimal operation of microphone confirmed according to on/off axis rejection mode
		i. Differentiate types of programmes / events ii. Check types of microphone for programme / events iii. Check microphone polar pattern iv. Check frequency response v. Coordinate proper location and distance for optimal operation of microphone	i. Careful of electrical & electronic safety handling procedure ii. Knowledgeable in microphone handling	24 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Perform amplifier setup assessment	i. Amplifier power rating ii. Types of amplifier cable iii. Amplifier connector iv. Amplifier cable input & output v. Amplifier earth termination vi. Impedance matching vii. Power supply interference			18 hours	Lecture	• Power requirement confirmed based on crowd and venue size • Amplifier cable and connector confirmed correctly according to requirement • Number of speakers to amplifier connection confirmed • Source of power supply confirmed according to types of system
		i. Check amplifier power rating ii. Check amplifier cable iii. Check amplifier connector iv. Check amplifier cable input & output v. Check amplifier earth termination vi. Check power	i. Meticulous in calculating impedance matching for speaker and amplifier connection ii. Resourceful of proper amplifier handling	25 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		supply interference vii. Check impedance matching for speaker and amplifier connection				
4. Perform speaker setup assessment	i. Types of speaker ii. Speaker power rating iii. Speaker connector iv. Speaker cable input & output v. Speaker Impedance matching vi. Audio cross over vii. Acoustic calculation			18 hours	Lecture	• Number of required speakers confirmed based on crowd, venue size and nature of event • Speaker cable and connector confirmed according to requirement • Audio frequency in audio spectrum confirmed according to requirement • Speaker setup
		i. Check speaker power rating ii. Check speaker connector iii. Check speaker cable input & output	i. Meticulous in calculating impedance matching for speaker and amplifier	25 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iv. Check impedance matching for speaker and amplifier connection v. Delegate cross over audio signal vi. Comply speaker acoustic requirement	connection ii. Resourceful of proper speaker handling			according to acoustic characteristic of the venue
5. Perform mixer setup assessment	i. Types of mixer • Analogue • Digital ii. Mixer connector iii. Mixer socket iv. Mixer signal flow • Channel input • Auxiliary -pre/ post • Insert send/ return • Group v. Phase button vi. Pan port vii. Assign button			20 hours	Lecture	• Number of channel required confirmed based on event • Mixer connectors confirmed according to requirement • Mixer signal flow confirmed according to types of event

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Check types of mixer ii. Check required mixer connector iii. Check required mixer socket iv. Check mixer signal flow v. Check phase button vi. Check pan port vii. Check assign button	i. Resourceful of proper mixer handling ii. Resourceful of electrical & electronic safety handling procedure	25 hours	Demonstration	
6. Perform audio devices recording setup assessment	i. Types of recording devices • Digital Hard disk recorder • Analogue recorder • Portable recorder ii. Studio equipment layout diagram iii. Audio devices Standard operating level			20 hours	Lecture	• Types of recording devices confirmed based on recording requirement • Required recording devices confirmed according to requirement • Recording

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Check types of recording devices ii. Check required recording devices iii. Check recording devices usage iv. Illustrate simple studio equipment block diagram v. Comprehend basic Audio devices Standard operating level	i. Careful of proper recording devices handling ii. Awareness of electrical & electronic safety handling procedure	25 hours	Demonstration	devices usage confirmed according to requirement • Simple studio equipment block diagram illustration produced according to requirement
7. Perform audio outboard setup assessment	i. Types of outboard devices ii. Functions of outboard devices iii. Types of outboard hardware • Compressor • Graphic equalizer • Signal Processor • Pre Amplifier • CD Player			18 hours	Lecture	• Types of required outboard devices confirmed according to requirement • Outboard devices functions distinguished properly according to specific function

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Patch Bay • Etc iv. Outboard devices signal flow interface v. Outboard devices installation and integration procedure					• Outboard devices signal flow interface confirmed according to requirement • Outboard devices installation and integration procedure confirmed according to requirement
		i. Check types of outboard devices ii. Check functions of outboard devices iii. Check required outboard hardware iv. Check outboard devices signal flow interface v. Check outboard devices installation and integration procedure	i. Resourceful of proper outboard devices handling ii. Resourceful of outboard devices installation and integration procedure	25 hours	Demonstration	

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Strings	1:10
2. Woodwind	1:10
3. Brass	1:10
4. Percussions	1:10
5. Microphone	1:10
6. Synthesizers	1:10
7. Elec. Guitar	1:10
8. Elec. Bass	1:10
9. Headphone	1:10

References:

1. Philip Giddings (Jun 26, 1997), Audio Systems Design and Installation
2. Daniel M. Thompson (Feb 1, 2005), Understanding Audio: Getting the Most Out of Your Project or Professional Recording Studio
3. John Watkinson (Nov 27, 2002), Introduction to Digital Audio, Second Edition
4. Genevieve Helsby (Sep 1, 2007), Those Amazing Musical Instruments! with CD: Your Guide to the Orchestra Through Sounds and Stories
5. Neville H. Fletcher and Thomas D Rossing (Dec 1, 2010), The Physics of Musical Instruments
6. Doug Matthews (Dec 4, 2007), Special Event Production: The Resources
7. Mark Garrison (Jun 20, 2011), The Encyclopedia of Home Recording: A Complete Resource For The Home Recording Studio
8. Brian Tiemann (Feb 2, 2004) , Mac OS X Panther in a Snap

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**AV EQUIPMENT MAINTENANCE**						
Competency Unit Descriptor	AV equipment maintenance is focusing on checking of equipments functionalities according to planned schedule. The personnel shall be able to carry out maintenance activities to ensure the equipments are in good conditions at the required time						
Competency Unit ID	AP-XXX-10	**Level**	3	**Training Duration**	70 hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Audio software maintenance	i. Type of system maintenance • Hard disk backup • Disk defragmentation • Disk clean up ii. Maintenance schedule			16 hours	Lecture	• Type of system maintenance determined according to software requirement • Software maintenance schedule done properly

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Identify type of system maintenance ii. Perform software maintenance schedule	i. Careful of electrical & electronic safety handling procedure	20 hours	Demonstration	
2. Audio hardware internal and external servicing	i. Input connectors servicing ii. Fader and knob servicing iii. Internal cleaning			14 hours	Lecture	i. Input connectors determined ii. Fader and knob determined iii. Internal cleaning completed
		i. Identify input connectors ii. Identify fader and knob iii. Perform internal cleaning	i. Careful of electrical & electronic safety handling procedure	20 hours	Demonstration	

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 02.01 Interpret and follow manuals, instructions and SOP's 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Audio software	1:2
2. Audio hardware	1:2

References:

1. Donald E. Bumpass (Dec 1981), Selected Av Recipes: Materials, Equipment, Use and Maintenance
2. Sam Sullivan (1981), AV basics: A handbook of operating information and simplified maintenance instructions for commonly used audio-visual equipment
3. Buster Fayte (Nov 10, 2008), The Complete Home Music Recording Starter Kit: Create Quality Home Recordings on a Budget!
4. David Reese, Lynne Gross and Brian Gross (Feb 9, 2009), Audio Production Worktext, Sixth Edition: Concepts, Techniques, and Equipment

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	**DIGITAL CREATIVE**						
Job Area	**AUDIO PRODUCTION**						
Competency Unit Title	**MUSIC PRECISION**						
Competency Unit Descriptor	Music precision is focusing on selecting and performing tuning on musical instruments and the ability to tune instrument and identifying beats per minutes and tempo so that musical instrument tuned with correct intonation according audio production sound quality requirements						
Competency Unit ID	AP -XXX-11	**Level**	3	**Training Duration**	146 hours	**Credit Hours**	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify musical instrument in pop band	i. Types of musical instruments • Woodwind • Brass • Strings • Percussion • Electronic			12 hours	Lecture	• Sing or play on the piano or guitar a given melody. • Prepare lead sheet of song to be recorded
		i. Identify types of musical instrument ii. Aurally and visually identify various musical	i. Proper care and handling of musical instruments	16 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Perform pitch tuning on the musical instrument	i. Pitch Tuning • Tone generation principles • Range • Tuning			14 hours	Lecture	• Proper microphone placement for various instruments based on the each instruments' tone generating principle
		i. Accurately tunes an instruments aurally using a pitch fork, piano or electronic tuner	i. Proper care and handling of musical instruments	18 hours	Demonstration	
3. Identify music genre	i. Musical styles and genres • Popular music • Classical music • Jazz • Ethnics			10 hours	Lecture	• Correctly determines the style or genre of a given musical example
		i. Aurally identify musical styles and genres	i. Proper care and handling of musical instruments	14 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Identify beats and tempo	i. Rhythmic notation			12 hours	Lecture	• Correctly clap a given rhythm notation
		i. Perform clap rhythmic notation based on a given tempo	i. Proper care and handling of musical instruments	16 hours	Demonstration	
5. Identify melody and basic chord progression	i. Basic music sequencing ii. Midi system setup iii. Basic music notation • Pitch • Rhythm • Form/structure • Harmony			14 hours	Lecture	• Arrange music using sequencing software • Prepare song map of music arrangement • Play on the piano basic chord progressions using the left and right hand
		i. Read a lead sheet with correct interpretation of symbols relating to dynamics articulation and structure ii. Perform play on	i. Proper care and handling of musical instruments	20 hours	Demonstration	

Work Activities	Related Knowledge	Applied Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		a keyboard basic melody iii. Perform sing back a given melody				

Employability Skills

Core Abilities	Social Skills
01.02 Document information, procedures or processes 01.04 Analyse information 02.01 Interpret and follow manuals, instructions and SOP's 02.03 Communicate clearly 03.05 Demonstrate safety skills 06.01 Understand systems 06.05 Analyse technical systems	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Woodwind 2. Brass 3. Strings 4. Percussion 5. Electronic	1 : 5 1 : 5 1 : 5 1 : 5 1 : 5

References:

1. Scott Jarrett and Holly Day (Feb 5, 2008), Music Composition For Dummies
2. Philippe Oboussier (Sep 8, 1977), Arranging Music for Young Players: A Handbook on Basic Orchestration
3. Bert Konowitz (1992), Alfred's Basic Adult Piano Course (Jazz/Rock Course, Basic Alfdred's Piano Library)
4. Jay Rose (Dec 2002), Producing Great Sound for Digital Video
5. Jay Rose (Mar 17, 2008), Producing Great Sound for Film and Video, Third Edition (DV Expert Series)

SUMMARY OF TRAINING DURATION

No.	Competency Unit Title	Work Activities	Related Knowledge	Applied Skills	Hours	Assessment (KA & PA)	Total (Hours)
1	Voice Recording	Identify job criteria for voice recording	10	16	26		116
		Place microphone in correct position	10	16	26		
		Conduct voice recording	14	20	34		
		Conduct voice over dubbing and error correction	12	18	30		
2	Musical Instrument Recording	Identify instrumentation types	14	18	32		217
		Perform microphone and instrument matching	16	20	36		
		Perform microphone placement	16	20	36		
		Perform microphone input gain level setting	12	16	28		
		Conduct instrument recording	18	24	42		
		Conduct over dubbing and error correction	18	25	43		
3	Sound Effect Recording	Identify sound effect types	18	30	48		214
		Perform microphone placement	12	20	32		
		Perform microphone input gain level setting	16	26	42		
		Conduct sound effect recording	18	26	44		
		Conduct over dubbing and error correction	18	30	48		

4	Live Sound Recording	Identify live sound programmes/ event recording requirements	12	20	32		224
		Frequency ranges for microphone selection	16	25	41		
		Perform microphone placement	16	20	36		
		Perform microphone input gain level setting	12	16	28		
		Conduct live sound recording	18	26	44		
		Conduct over dubbing and error correction	18	25	43		
5	Location Sound Recording	Identify location sound project	16	20	36		146
		Perform microphone placement	16	20	36		
		Perform microphone input gain level setting	12	16	28		
		Conduct location sound recording	18	28	46		
6	Voice Editing	Analyse recorded voice source	15	20	35		151
		Perform voice editing process	20	26	46		
		Perform refine voice editing	15	20	35		
		Prepare edited voice material for premix process	15	20	35		
7	Sound Effect Editing	Analyse recorded sound effect	10	14	24		122
		Perform sound effect editing process	12	16	28		
		Perform refine sound effect editing	15	20	35		
		Prepare edited sound effect material for premix process	15	20	35		

8	Music Editing	Analyse recorded music	18	24	42		158
		Perform music editing process	20	26	46		
		Perform refine music editing	15	20	35		
		Prepare edited music material for premix process	15	20	35		
9	Audio Equipment Setup Assessment	Perform audio cable setup assessment	16	24	40		299
		Perform microphone setup assessment	16	24	40		
		Perform amplifier setup assessment	18	25	43		
		Perform speaker setup assessment	18	25	43		
		Perform mixer setup assessment	20	25	45		
		Perform recording audio devices setup assessment	20	25	45		
		Perform audio outboard setup assessment	18	25	43		
TOTAL HOURS (CORE Competencies)			687	960	1647		1647
10	Av Equipment Maintenance	Audio software maintenance	16	20	36		70
		Audio hardware internal and external servicing	14	20	34		
11	Music Precision	Identify musical instrument in pop band	12	16	28		146
		Perform pitch tuning on the musical instrument	14	18	32		
		Identify music genre	10	14	24		
		Identify beats and tempo	12	16	28		
		Identify melody and basic chord progression	14	20	34		
TOTAL HOURS (CORE Competency + Elective Competency)			779	1084	1863		1863