Area of study 1:

Recording and production techniques for both corrective and creative purposes

Component 1: Recording	Component 2: Technology Based Composition	Component 3: Listening and Analysing	Component 4: Production and Analysing
1.1 Software and hardware	1.1 Software and hardware		1.1 Software and hardware
1.2 Capture of sound	1.2 Capture of sound (may be required for some briefs)	1.1 Capture of sound	1.2 Capture of sound
	1.3 Synthesis	1.2 Synthesis	1.3 Synthesis
	1.4 Sampling	1.3 Sampling	1.4 Sampling
	1.5 Sequencing	1.4 Sequencing	1.5 Sequencing
1.3 Audio editing	1.6 Audio editing	1.5 Audio editing	1.6 Audio editing
1.4 Pitch and rhythm correction and manipulation	1.7 Pitch and rhythm correction and manipulation	1.6 Pitch and rhythm correction and manipulation	1.7 Pitch and rhythm correction and manipulation
1.5 Automation	1.8 Automation	1.7 Automation	1.8 Automation
1.6 Dynamic processing	1.9 Dynamic processing	1.8 Dynamic processing	1.9 Dynamic processing
1.7 Stereo	1.10 Stereo	1.9 Stereo	1.10 Stereo
1.8 EQ	1.11 EQ	1.10 EQ	1.11 EQ
1.9 Effects	1.12 Effects	1.11 Effects	1.12 Effects
1.10 Balance and blend	1.13 Balance and blend	1.12 Balance and blend	1.13 Balance and blend
1.11 Mastering	1.14 Mastering	1.13 Mastering	1.14 Mastering

Area of study 1: Task list

Topics	Content	Skills, knowledge and understanding	S	C	M
Software and hardware	The core and advanced functions of a digital audio workstation (DAW) (1,2,4)	Functions are detailed below in this table			
	A range of hardware (1,2,4)	Microphones; audio interfaces; microphone pre-amps; DI boxes; mixing desks; outboard effects; guitar pedals controller keyboard (4)			

	Other programming environments and new and emerging software (2,4)	MIDI, OSC or any other programming environments may be used (2,4) Awareness of new, alternative software environments used in music production*(4)			
	The impact of new and emerging software on music production (4)	The contribution of new technology to music production practices* (4)			
1.2 Capture of sound	Gain structure and how it affects noise and distortion (1,2,3,4)	Setting gain to maximise signal-to noise-ratio (1,2,3,4) Avoiding clipping, interference and hiss (1,2,3,4) Pre-amp controls: phantom power; gain; pad; high pass filter; polarity; clip/activity LED (1,2,4) Checking input and output levels when several effects/pieces of hardware are chained together (1,3,4)			
	Characteristics and suitability of microphones (1,2)	Dynamic, condenser Directional microphones; (cardioid, hypercardioid and figure of eight polar patterns): omnidirectional microphones Proximity effect Microphone frequency responses Sensitivity			
	The characteristics and suitability of microphone types (3,4)	Dynamic; condenser; ribbon			
	Microphone techniques (1,2)	Single and multiple microphone techniques Placement distance and angle Managing spill and background noise Eliminating plosives			
	The suitability of microphone placement techniques (3,4)	Suitable distances and angles Recording instruments using a single microphone Recording instruments using multiple microphones, e.g. drum kit On-axis and off-axis frequency responses (4)			

	The advantages and disadvantages of microphone types in terms of polar pattern and frequency response (3,4)	Advantages and disadvantages of different polar patterns (4) Directional: cardioid; hyper cardioid; figure of 8 Proximity effect Omnidirectional Frequency response and transient response			
	Advanced microphone techniques (3,4)	Understanding phase relationships between multiple microphones (4) Coincident and spaced stereo pairs			
	How microphones work (3,4)	Sensitivity Microphone switches: pad; high pass filter; polar pattern switch Microphone accessories: pop shield; elastic suspension/cradle electromagnetic induction; (4) capacitance Diaphragms; (4) moving coil; (4) plates (4) Phantom power (4)			
1.3 Synthesis	How synthesis is used to create sounds (2,3,4)	Selecting and mixing sine, triangle, pulse, square and saw waveforms; white noise; low frequency oscillator (LFO); filters (low pass and high pass); envelopes			
	How timbre is affected by a wider range of parameters (2,3,4)	How timbre is affected by cut-off frequency resonance, attack, decay, sustain and release (amplitude envelope) Mapping envelope and LFO to filter cut-off and pitch Oscillator octave, coarse and fine tuning Pitch bend range Monophonic; polyphonic (4) Portamento; arpeggiator			
1.4 Sampling	Editing samples (2,3,4)	Cutting/trimming ● Tuning			

	Looping (2,3,4)	Loop points Crossfades Zero crossings; cross-fade looping (4)			
	Pitch mapping (2,3,4)	Transposing			
	Advanced Parameters (3,4)	Sample rate and bit depth Reversing samples Using synthesis parameters on samples, e.g. filter and envelope (4) Setting pitch key zones (4) Velocity layering (4) Time-stretch (4)			
	Other sampling parameters (2)	Reversing samples; stuttering Using synthesis parameters on samples, e.g. filter and envelope Setting pitch key zones Velocity layering			
	Context (2)	Use of samples in new contexts to create new meanings or effects			
1.5 Sequencing	Real-time input (2,4)	Using a MIDI controller keyboard			
	Non real-time input (2,4)	Step grid (drum editor) Using a pencil tool to draw in notes			
	Quantise (2,3)	Hard quantise values e.g.8,12,16, 24, 32 (and note length equivalents) Swing/percentage quantise Groove templates (2) Snap / grid (4)			
	Editing skills (2,3,4)	Piano roll and list editor Velocity and note length Cutting, looping and duplicating			
	How MIDI works by studying data bytes (4)	Note on/off; pitch; controllers; pitch bend; LSB and MSB; tempo data in bpm Setting a fixed tempo and applying tempo changes			

1.6 Audio editing	Truncating (1,2,4)	Scissor tool/split Lead-in and lead-out times (4)			
	How to remove clicks and noise (1,2,3,4)	Fades and cross fades Removing hiss, hum and plosives(3,4)			
	How and why clicks and other noises occur (4)	For example, discontinuous waveforms and plosives			
	Audio editing functions (1,2,4)	Normalising and inverting waveforms			
1.7 Pitch and rhythm correction and manipulation	How to correct inaccuracies in pitch (1,2,3,4)	For example, re-tuning a vocal part with automatic tuning Manually tuning individual notes using pitch shift (1,3) Manually tuning individual notes by drawing in pitch, playing via MIDI or offline pitch shift process (2,4) Replacing small errors with material from elsewhere in the song (1)			
	How to correct inaccuracies in rhythm (1,2,3,4)	Replacing small errors with material from elsewhere in the song (1,3) Manually cutting and moving notes that are out of time For example, tightening drum parts using audio quantise (2,3,4)			
	Parameters that allow greater control and creativity (1,2,3,4)	Pitch: use of automatic tuning as a creative effect; response time; fine tuning in cents Pitch: selecting notes / scales (3) Pitch: formant shifts (2) Rhythm: groove templates; time stretching (2,3) selecting different algorithms; formant shifts; fine tuning in cents; polyphonic re-tuning (4) Rhythm: transient detection threshold; groove templates; selecting different algorithms; time-stretch (4)			
1.8 Automation	Volume and pan automation (1,2,3) How to use volume and pan automation (3,4)	Fades and movement in the stereo field			

	Automating parameters of plugins (1,2,3,4)	For example, cut-off frequency and delay feedback			
1.9 Dynamic processing	Uses of compression and gating (1,2,3,4)	Situations when you would use a compressor and or/gate Limiting; expansion; de-essing Pumping			
	Core and advanced parameters of a compressor and gate (1,2,3,4)	Compressor threshold, ratio and make-up gain, attack, release, knee side-chain Gate threshold, attack, release, reduction/range Gate threshold, reduction/range attack, release, hold and side-chain (4) Drawing graphs of compression and gating (4)			
1.10 Stereo	Pan (1,2,3,4)	Setting pan positions for individual parts (tracks, instruments and/or vocals) in a recording (1,2,4) How to identify pan positions of individual parts (tracks instruments and/or vocals) in a recording (3)			
	Panning law, mono-summing and mid-side processing (1)	Stereo widening Mono compatibility			
1.11 EQ	Different types of EQ in a recording (1,2,3,4)	Low shelf; high shelf; band; low pass filter; high pass filter; band pass filter Correcting problems including sibilance, noise and resonances Parametric EQ; graphic EQ (4)			
	How different parameters affect sound (1,2,3,4)	Gain; frequency/cut off; resonance; Q; slope Drawing graphs of EQ (4)			
1.12 Effects	Core and advanced parameters (1,2,3,4)	Wet/dry and bypass settings Core and advanced parameters as listed for each effect Using inserts and effects (4)			
	Reverb (1,2,3,4)	Room; hall; plate; spring, gated; reversed Reverb time pre-delay time; high frequency damping			
	Delay (1,2,3,4)	Single and multi-tap; slapback; timed; ping pong Delay time; feedback; number of repeats; delay pan and EQ Automatic double tracking (ADT)			

	Modulated delay (1,2,3,4)	Flange; chorus; phaser LFO rate; LFO depth; feedback Comb filtering			
	Wah wah pedal (1,2,3,4)	Band pass filter How the pedal controls the centre frequency (4)			
	Distortion (1,2,3,4)	Overdrive; fuzz Gain/drive; tone Amp modelling parameters: amps and speaker types; virtual mic type/placement (1,2,4)			
	Tremolo (1,2,3,4)	LFO rate; LFO depth			
	Tremolo (3,4)	Identify tremolo in a recording(3) LFO rate(4)			
	Vocal effects (1,2,3,4)	Vocoder; Talk Box			
	Vocal effects (4)	Vocoder			
	Lo-fi (3,4)	Bit-crushing; vinyl surface noise/crackle effects; telephone effect; vocal distortion; ambient/found sound			
1.13 Balance and blend	Balance (1,2,3,4)	The relative balance of parts (tracks, instruments and/or vocals)			
	Blend (1,2,3,4)	How blend is affected by compression, EQ and effects			
1.14 Mastering	Perceived volume (1,2,3,4)	Limiting			
	Understanding how EQ is used in the mastering process (1,2,3,4)	Master EQ, e.g. high shelf boost and rumble (high pass) filter			
	Mastering parameters (3,4)	Stereo width; master reverb wet/dry mix (3) Limiter gain (4) Fade in/fade out (4)			