CONDITIONS AND REQUIREMENTS

GCE Subject Level Conditions and Requirements for Music Technology (2021)

November 2020

ofqual

Contents

Introduction

About this document

This document is part of a suite of documents which sets out the regulatory requirements for awarding organisations offering reformed A levels and AS qualifications in 2021

We have developed all our requirements for GCE qualifications with the intention that AS and A level qualifications should fulfil the purposes set out in the table below:

A levels	AS qualifications
• define and assess achievement of the knowledge, skills and understanding which will be needed by students planning to progress to undergraduate study at a UK higher education establishment, particularly (although not only) in the same subject area; • set out a robust and internationally comparable post-16 academic course of study to develop that knowledge, skills and understanding; • permit UK universities to accurately identify the level of attainment of students; • provide a basis for school and college accountability measures at age 18; and • provide a benchmark of academic ability for employers.	• provide evidence of students' achievements in a robust and internationally comparable post-16 course of study that is a sub-set of A level content; • enable students to broaden the range of subjects they study.

Requirements set out in this document

This document sets out the GCE Subject Level Conditions for Music Technology. These conditions will come into effect at 09:30 on 5 November 2020 for the following qualifications:

- all GCE A levels in Music Technology; and
- all standalone GCE AS qualifications in Music Technology

for Learners completing the qualification in 2021, except where the GQCov Framework applies.

It also sets out our requirements in relation to:

- interpretation of the content document - an awarding organisation must comply with these requirements under Condition GCE(Music Technology)1.1(c);
- assessment objectives - awarding organisations must comply with these requirements under Condition GCE(Music Technology)1.2; and
- assessment - awarding organisations must comply with these requirements under Condition GCE(Music Technology)2.3.

Appendix 1 reproduces the subject content requirements for Music Technology, as published by the Department for Education. Awarding organisations must comply with these requirements under Condition GCE(Music Technology)1.1.

With respect to the qualifications listed above, awarding organisations must also comply with:

- our General Conditions of Recognition, which apply to all awarding organisations and qualifications;
- our GCE Qualification Level Conditions and Requirements; and
- all relevant Regulatory Documents.

With respect to all other GCE qualifications in Music Technology taken by Learners completing the qualification in 2022 and after, an awarding organisation must continue to comply with the GCE Subject Level Conditions and Requirements for Music Technology.

Subject Level Conditions

GCE Subject Level Conditions for Music Technology

Condition GCE(Music Technology) 1: Compliance with content requirements

GCE (Music Technology)1.1

In respect of each GCE Qualification in Music Technology which it makes available, or proposes to make available, an awarding organisation must -

(a) comply with the requirements relating to that qualification set out in the document published by the Secretary of State entitled 'Music technology GCE AS and A level subject content', document reference DFE-00214-2015,

(b) have regard to any recommendations or guidelines relating to that qualification set out in that document, and

(c) interpret that document in accordance with any requirements, and having regard to any guidance, which may be published by Ofqual and revised from time to time.

GCE (Music Technology)1.2

In respect of each GCE Qualification in Music Technology which it makes available, or proposes to make available, an awarding organisation must comply with any requirements, and have regard to any guidance, relating to the objectives to be met by any assessment for that qualification which may be published by Ofqual and revised from time to time.

Condition GCE(Music Technology) 2: Assessment

GCE (Music Technology)2.1

Condition GCE4.1 does not apply to any GCE Qualification in Music Technology which an awarding organisation makes available or proposes to make available.

GCE (Music Technology)2.2

In respect of the total marks available for a GCE Qualification in Music Technology which it makes available, an awarding organisation must ensure that -

(a) 60 per cent of those marks are made available through Assessments by Examination, and

(b) 40 per cent of those marks are made available through assessments set by the awarding organisation that are not Assessments by Examination.

GCE(Music Technology)2.3

An awarding organisation must ensure that in respect of each assessment for a GCE Qualification in Music Technology which it makes available it complies with any requirements, and has regard to any guidance, which may be published by Ofqual and revised from time to time.

Subject content requirements

Requirements in relation to subject content for GCE Music Technology

The subject content for GCE Qualifications in Music Technology is set out in the Department for Education's 'Music technology GCE AS and A level subject content', document reference DFE-00214-2015 (the 'Content Document').

Condition GCE(Music Technology)1.1(c) requires awarding organisations to interpret the Content Document in line with any requirements, and having regard to any guidance, published by Ofqual.

We set out our requirements for the purposes of Condition GCE(Music Technology)1.1(c) below.

Capture of sound

An awarding organisation must interpret paragraphs 8 and 13 of the Content Document as if practical work does not require the capture of sound.

Assessment objectives

Assessment objectives - GCE Qualifications in Music Technology

Condition GCE(Music Technology)1.2 allows us to specify requirements relating to the objectives to be met by any assessment for GCE Qualifications in Music Technology.

The assessment objectives set out below constitute requirements for the purposes of Condition GCE(Music Technology)1.2. Awarding organisations must comply with these requirements in relation to all GCE Qualifications in Music Technology they make available.

	Objective	Weighting (A level)	Weighting (AS)
AO1	Demonstrate use of music technology to edit and produce recordings	*30-40%*	*30-40%*
AO2	Demonstrate use of music technology to create, edit and structure sounds to develop a technology-based composition	*20-30%*	*20-30%*
AO3	Demonstrate and apply knowledge and understanding of music technology	*20-30%*	*25-35%*
AO4	Use analytical and appraising skills to make evaluative and critical judgements about the use of music technology	*10-20%*	*10-20%*

Assessment requirements

Assessment requirements - GCE Qualifications in Music Technology

Condition GCE(Music Technology)2.3 allows us to specify requirements relating to the objectives to be met by any assessment for GCE Qualifications in Music Technology.

We set out below our requirements for the purposes of Condition GCE(Music Technology)2.3. Awarding organisations must comply with these requirements in relation to all GCE Qualifications in Music Technology they make available.

Forms of non-examination assessment

Condition GCE(Music Technology)2.2(b) states that an awarding organisation must ensure that of the total marks available for a GCE Qualification in Music Technology, 40 per cent of those marks shall be made available through assessments set by the awarding organisation which are not Assessments by Examination.

In respect of that 40 per cent, an awarding organisation must ensure that -

(a) 20 per cent of the total marks available for the qualification are made available through a task which assesses a Learner's knowledge, skills and understanding in relation to the editing and production of recordings (the 'Recording Assessment'), and

(b) 20 per cent of the total marks available for the qualification are made available through a task which assesses a Learner's knowledge, skills and understanding in relation to the development of a technology-based composition (the 'Composition Assessment').

The Recording Assessment

An awarding organisation must ensure that each Recording Assessment is designed and set to -

(a) assess only assessment objective AO1,

(b) require each Learner to edit and produce an audio recording, with a duration of -

  (i) for a GCE AS qualification, at least one minute and 30 seconds, and

  (ii) for a GCE A level qualification, at least two minutes

(c) require each Learner to provide such additional evidence as is necessary to enable the consideration of that Learner's level of attainment in respect of all of the relevant criteria against which Learners' performance in that assessment will be differentiated,

(d) be taken under conditions specified by the awarding organisation, including, in particular, conditions which ensure that the evidence generated by each Learner can be Authenticated,

(e) minimise the predictability of those assessments, and

(f) facilitate comparability of those assessments, both within each set of assessments,[1] and over time.

In respect of the task(s) which it sets for each Recording Assessment, an awarding organisation -

(a) must not communicate the task(s) that it has set to Centres before 1 June in the calendar year preceding the year in which the qualification is to be awarded,

(b) must ensure that each task details the evidence which must be submitted to the awarding organisation, and

(c) provides sample recordings (stems) or approves sample recordings selected by the Centre that are suitable for Learners to demonstrate their ability to edit and produce audio recordings.

The Composition Assessment

An awarding organisation must ensure that each Composition Assessment is designed and set to -

(a) assess only assessment objective AO2,

(b) require each Learner to develop a technology-based composition with a duration of -

(i) for a GCE AS qualification, at least one minute and 30 seconds, and

(ii) for a GCE A level qualification, at least two minutes,

(c) require each Learner to provide such additional evidence as is necessary to enable the consideration of that Learner's level of attainment in respect of all of the relevant criteria against which Learners' performance in that assessment will be differentiated,

(d) to be taken under conditions specified by the awarding organisation, including, in particular, conditions which ensure that the evidence generated by each Learner can be Authenticated,

(e) minimise the predictability of those assessments, and

(f) facilitate comparability of those assessments, both within a set of assessments, and over time.

In respect of the task(s) which it sets for each Composition Assessment, an awarding organisation -

(a) must not communicate the task(s) that it has set to Centres before 1 September in the calendar year preceding the year in which the qualification is to be awarded,

(b) must ensure that each task details the evidence which must be submitted to the awarding organisation, and

(c) must ensure that the requirement to create sounds can be satisfied with or without requiring Learners to capture live sounds themselves.

[1] For the purposes of these requirements, a 'set of assessments' means the assessments to be taken by a particular Learner for a GCE Qualification in Music Technology. For clarity, the assessments taken by Learners may vary, depending on any possible routes through the qualification.

Marking of assessments

Evidence generated by a Learner in an assessment for a GCE Qualification in Music Technology which is not an Assessment by Examination may be marked -

(a) by the awarding organisation or a person connected to the awarding organisation,

(b) by a Centre, or

(c) through a combination of (a) and (b).

An awarding organisation must demonstrate to Ofqual's satisfaction in its assessment strategy that -

(a) it has taken all reasonable steps to identify the risk of any Adverse Effect which may result from its approach to marking of assessments, and

(b) where such a risk is identified, it has taken all reasonable steps to prevent that Adverse Effect or, where it cannot be prevented, to mitigate that Adverse Effect.

Appendix 1 – Subject content (published by Department for Education)

Department for Education

Music technology

GCE AS and A level subject content

December 2015

Contents

The content for music technology AS and A level

Introduction

1. AS and A level subject content sets out the knowledge, understanding and skills common to all AS and A level specifications in music technology.

Aims and objectives

2. Together with the assessment objectives, subject content provides the framework within which the awarding organisations create the detail of their specifications, ensuring progression from a range of subjects at GCSE and to higher education.

3. The specifications must provide access to higher education and university degree courses in music technology and music technology-related subjects.

4. AS and A level specifications in music technology must offer a broad and coherent course of study which encourages students to:

- understand the principles of sound and audio technology and how they are used in creative and professional practice
- understand a wide range of recording and production techniques and how they are used in practice for both corrective and creative purposes
- develop recording skills to demonstrate an understanding of sound and its capture
- develop the skills to create and manipulate sound in imaginative and creative ways
- develop skills in critical and analytical listening to evaluate the use of sound and audio technology in students' own and others' work
- develop an understanding of the historical and cultural contexts of the use of technology in the creation, performance and production of music
- understand the interdependence of sound engineering knowledge, understanding and skills
- make links between the integrated activities of recording, processing, mixing, sound-creation and creative music technology applications, underpinned by analytical listening
- understand the basic principles of acoustics, psycho-acoustics, and the digitalisation of sound
- understand the latest developments in music technology and the impact they have on technology-based composition, performance and the tonal qualities of recordings
- develop and extend the knowledge, understanding and skills needed to create recordings and technology-based compositions which communicate effectively to the listener

- understand the history and traditions of the sonic and musical applications of technology and how they promote personal, social, intellectual and cultural development
- develop the skills required to manage music technology projects from inception to completion, by evaluating and refining recordings and technology-based compositions over extended periods of time
- develop as effective and independent students, and as critical, creative and reflective thinkers with enquiring minds

Subject content

5. AS and A level specifications in music technology must build on the knowledge, understanding and skills established at Key Stage 4 and a range of GCSE qualifications.

6. AS and A level specifications in music technology must require students to develop an in-depth knowledge and understanding of:

- recording and production techniques for both corrective and creative purposes
- principles of sound and audio technology
- the development of recording and production technology

Specifications must also require students to apply these, where appropriate, to their own work.

Recording and production techniques for both corrective and creative purposes

7. AS and A level specifications in music technology must require students to develop knowledge and understanding for corrective and creative purposes of:

- software and hardware
- capture of sound
- sequencing and MIDI
- audio editing
- EQ
- dynamic processing
- effects
- balance and blend
- stereo
- synthesis
- sampling
- automation
- pitch and rhythm correction and manipulation
- mastering

8. Students will be expected to know and understand the following for corrective and creative purposes, and use in practical work as appropriate:

	At AS and A level	Additionally at A level
Software and hardware	• the core functions of a Digital Audio Workstation (DAW) detailed below in this table • a range of hardware including microphones and audio interfaces	• the advanced functions of a Digital Audio Workstation (DAW) detailed below in this table • other programming environments and new and emerging software • the impact of new and emerging software on music production
Capture of sound	• gain-structure and how it affects noise and distortion • the characteristics and suitability of microphone types e.g. dynamic, condenser • the suitability of microphone techniques e.g. distances	• the advantages and disadvantages of microphone types in terms of polar pattern and frequency response • advanced microphone techniques e.g. coincident pair • how microphones work including microphone sensitivity, electromagnetic induction and capacitance
Sequencing	• real time input • step input • quantise • velocity and note length	• how MIDI and/or OSC works by studying data bytes • data bytes including note on, pitch, controllers, pitch bend LSB and MSB
Audio editing	• truncating • how to remove clicks and noise	• how and why clicks and noise occur e.g. discontinuous waveforms
EQ	• different types of EQ in a recording e.g. low-shelf, high-shelf, band, LPF, HPF	• how different parameters affect sound • how to draw graphs of EQ, e.g. Q, gain, frequency

Dynamic processing	• different uses of compression and gating • how to adjust threshold and ratio on a compressor in a recording	• how to use advanced parameters of a compressor e.g. attack, release, knee, sidechain • how to draw graphs of compression and gating
Effects	• reverb, delay, flange, chorus phaser, wah-wah and distortion in a recording • the core parameters including reverb time and delay time	• effects including ADT and autotune • detailed parameters including reverb pre-delay time and delay feedback
Balance and blend	• the relative balance of parts (tracks, instruments and/or vocals)	• how blend is affected by compression, EQ and effects
Stereo	• how to identify pan positions of individual parts (tracks, instruments and/or vocals) in a recording	• panning law, mono-summing and mid-side processing
Synthesis	• how synthesis is used to create different sounds by using oscillators, filters, envelopes and LFOs	• how timbre is affected by a wider variety of parameters e.g. cut-off frequency, resonance, attack, decay, sustain, release, graphs, and mapping of envelopes to filter cut-off frequency
Sampling	• pitch mapping, cutting/trimming and looping	• the use of samples in new contexts to create new meanings or effect • sample rate, bit-depth, other synthesis parameters e.g. filter and envelope
Automation	• how to use volume and pan automation	• how to automate parameters of plug-ins e.g. cut-off frequency, delay feedback

Pitch and rhythm correction and manipulation	• how to correct inaccuracies in pitch and rhythm e.g. by re-tuning a vocal part or tightening the rhythm in a drum part	• the parameters that allow greater control and creativity e.g. response time, transient detection threshold and groove templates
Mastering	• limiting and perceived volume	• parameters e.g. limiter gain • understanding how EQ works in the mastering process

Principles of sound and audio technology

9. AS and A level specifications must require students to develop knowledge and understanding of:

	At AS and A level	Additionally at A level
Acoustics	• how the live room acoustics affect the recording	• acoustics including describing a reverb tail e.g. pre-delay time, early reflections and reverberation time
Monitor speakers	• the characteristics of different monitor speakers e.g. woofer, tweeter	• how monitor speakers work (electromagnetic induction) • different types of monitor speakers and how they affect mix-translation
Leads	• how leads and connectivity work including signal path, signal types • the different types and uses of leads including jack and XLR	• how leads and connectivity work including impedance • the advantages and disadvantages of different leads and connectivity
Digital and analogue	• the differences between digital and analogue recordings • the advantages and disadvantages of digital and analogue recordings	• the specifications of digital and analogue recordings and how they affect sound quality e.g. A/D and D/A conversion, tape, vinyl and streaming

Numeracy		• how to display information graphically e.g. in waveforms and EQ curves • how to interpret graphs e.g. frequency response graphs and polar response graphs, to understand how sound quality is affected • technical numeracy including binary, formulae, logarithms, and how they are used in music technology • how to make calculations to describe sound waves including waveforms, frequency, phase and amplitude
Levels	• principles of levels and metering including management of levels to prevent distortion and maximise signal to noise ratio	• levels and metering including dB scales, psycho-acoustics, and when to use different scales including peak and RMS

Development of recording and production technology

10. AS and A level specifications must require students to develop knowledge and understanding of the history and development of recording and production technology from the 1950s through the eras of:

- direct to tape and mono recording (c.1950 – 1963)
- early multitrack (c.1964 – 1969)
- large scale analogue multitrack (c.1969 – 1995)
- digital recording and sequencing (c.1980 – present day)
- digital audio workstations (DAW) and emerging technologies (c.1996 – present day)

11. Through the context of the eras listed above AS and A level specifications will require students to identify and describe how recording technology has been used to create and shape sound, in relation to:

- electric and electronic instruments
- multi-track recording and equipment
- samplers
- synthesisers
- DAW

- recording media from a number of significant eras

12. In addition, through the context of the eras listed above, A level specifications will require students to:

- describe the technical function and operation of recording equipment identified through the eras
- understand the impact of music technology on creative processes in the studio
- understand the wider context of music technology and how it has influenced trends in music e.g. computer games, popular music, film score, soundscapes in art installations, sound effects for film

Skills

13. AS and A level specifications in music technology must require students to use the knowledge and understanding of recording and production techniques for both corrective and creative purposes (as listed in paragraph 8) to develop and demonstrate their ability to:

- use music production tools and techniques to capture sounds including musical instruments with accuracy and control
- manipulate existing sounds and music with technical control and style to produce recordings and technology-based compositions
- effectively use processing techniques to produce a balanced final mix
- develop competence as a music producer and sound engineer by producing recordings and technology-based compositions
- analyse critically and comment perceptively on music production techniques from a range of source material and their impact on music styles
- apply musical elements and language e.g. structure, timbre, texture, tempo and rhythm, melody, harmony and tonality, dynamics within the context of music technology
- use aural discrimination to identify and evaluate music technology elements in unfamiliar works and to refine recordings

14. In addition, A level specifications in music technology must require students to demonstrate the ability to:

- use music production tools and techniques to create new sounds and music with technical control and style
- develop effectiveness as a music producer and sound engineer by producing recordings and technology-based compositions
- use aural discrimination and technical skill to refine technology-based compositions

- apply the additional A level knowledge and understanding listed in paragraph 8 to extend the skills developed at AS level with increased sensitivity and technical control
- make informed decisions about equipment by analysing and interpreting a range of data, graphical representations and diagrams relating to frequency response, microphone polar patterns and dynamic response

List of acronyms

Term	Definition
A/D conversion	Analogue-to-digital conversion
ADT	Automatic double tracking or Artificial double tracking
D/A conversion	Digital-to-analogue conversion
DAW	Digital Audio Workstation
dB Scales	Decibel Scales
EQ	Equalisation
LFOs	Low Frequency Oscillation
LPF and HPF	Low Pass Filter and High Pass Filter
LSB and MSB	Least Significant Byte and Most Significant Byte
MIDI	Musical Instrument Digital Interface
OSC	Open Sound Control
Q	Quality
RMS	Root-mean-square

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