National 5 Course Specification

National 5 Music Technology

Course code:	C851 75
Course assessment code:	X851 75
SCQF:	level 5 (24 SCQF credit points)
Valid from:	session 2023–24

The course specification provides detailed information about the course and course assessment to ensure consistent and transparent assessment year on year. It describes the structure of the course and the course assessment in terms of the skills, knowledge and understanding that are assessed.

This document is for teachers and lecturers and contains all the mandatory information you need to deliver the course.

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Contents

Course overview

The course consists of 24 SCQF credit points which includes time for preparation for course assessment. The notional length of time for a candidate to complete the course is 160 hours.

The course assessment has two components.

Component	Marks	Scaled mark	Duration
Question paper	40	30	1 hour
Assignment	100	70	See course assessment section

Recommended entry	Progression
Entry to this course is at the discretion of the centre. Candidates should have achieved the fourth curriculum level or the National 4 Music Technology course or equivalent qualifications and/or experience prior to starting this course.	♦ Higher Music Technology (SCQF level 6) ♦ Higher Music (SCQF level 6) ♦ National Certificate in Music (SQCF level 6) ♦ National Certificate in Sound Production (SCQF level 6) ♦ National Progression Award in Music Business (SCQF level 6) ♦ other qualifications in music technology, music or related areas ♦ further study, employment and/or training

Conditions of award

The grade awarded is based on the total marks achieved across all course assessment components.

Course rationale

National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

Every course provides opportunities for candidates to develop breadth, challenge and application. The focus and balance of assessment is tailored to each subject area.

The National 5 Music Technology course encourages candidates to become successful, independent and creative in their use of technologies and to develop attributes and capabilities including creativity, flexibility and adaptability; enthusiasm and a willingness to learn; perseverance, independence and resilience; responsibility and reliability; confidence and enterprise.

The course engages candidates through practical music-technology-based activities and tasks which are supported by knowledge and understanding of music technology and music concepts, form and structures.

The course enables candidates to develop their practical technical skills and creative use of music technology in a range of contexts. It includes opportunities for personalisation and choice in selecting varied contexts for learning.

Candidates develop the ability to express themselves through music, which supports creativity and independence. The course encourages candidates to critically reflect on their learning and the quality of their work.

Purpose and aims

The purpose of the National 5 Music Technology course is to enable candidates to develop their knowledge and understanding of music technology and music concepts, particularly those relevant to 20th and 21st century music. Candidates develop technical and creative skills through practical learning. The course provides opportunities for candidates to develop their interest in music technology and to develop skills and knowledge relevant to the needs of the music industry.

The course aims to enable candidates to:

- develop skills in the analysis of music in the context of a range of 20th and 21st century musical styles and genres
- develop an understanding of aspects of the music industry, including a basic awareness of implications of intellectual property rights
- develop skills in the use of music technology hardware and software to capture and manipulate audio
- use music technology creatively in sound production in a range of contexts
- critically reflect on their own work and that of others

Who is this course for?

This course is suitable for candidates with a broad interest in music and for candidates with a specific interest in music technology and 20th and 21st century music. It also provides a pathway for those who want to progress to higher levels of study.

The course is practical and experiential in nature and there is considerable scope for personalisation and choice through the contexts for learning. It can be contextualised to suit a diverse range of candidate needs, interests and aspirations.

Course content

Developing an understanding of 20th and 21st century music

Candidates develop knowledge and understanding of 20th and 21st century styles and genres of music, and an understanding of how music technology has influenced and been influenced by developments in 20th and 21st century music. They develop an understanding of aspects of the music industry, including a basic awareness of the implications of intellectual property rights. They also develop listening skills, enabling them to identify a range of genres and styles and their main attributes, and relevant music concepts in the context of 20th and 21st century music.

Developing music technology skills

Throughout the course, candidates develop a range of skills and techniques relating to the creative use of music technology hardware and software to capture and manipulate audio. These skills include using appropriate audio input devices, applying microphone placement techniques, constructing the signal path for multiple inputs, setting input gain and monitoring levels, overdubbing and editing tracks, equalisation, time domain and other effects, and mixing techniques.

Music technology contexts

Candidates gain experience in using music technology skills to capture and manipulate audio and sequenced data, and mix down to an audio master in appropriate file format, in a range of contexts such as live performance, radio broadcast, composing and/or sound design for film, audiobooks and computer gaming.

Skills, knowledge and understanding

Skills, knowledge and understanding for the course

The following provides a broad overview of the subject skills, knowledge and understanding developed in the course:

- knowledge and understanding of 20th and 21st century styles and genres of music, and how this relates to the development of music technology
- knowledge of the features and functions of music technology hardware and software
- skills in using music technology hardware and software to capture and manipulate audio
- planning, implementing and evaluating a sound production
- application of music technology in creative ways
- awareness of a range of contexts in which music technology can be applied

Skills, knowledge and understanding for the course assessment

The following provides details of skills, knowledge and understanding sampled in the course assessment.

The styles and genres, technology skills and concepts assessed in the National 5 Music Technology course build on previous knowledge and understanding and skills in Music Technology courses at lower SQCF levels. Candidates are expected to have a secure understanding of the styles and genres, skills and concepts at National 3 and National 4 levels, in addition to knowledge and understanding of those specific to National 5 Music Technology.

These styles and genres, skills and concepts are detailed in the tables below.

Styles and genres		
National 5	**National 4**	**National 3**
rock 'n' roll Scottish Celtic rock 60s pop punk country hip hop musical	ragtime swing skiffle synth pop electronica dance music rap	jazz blues rock disco

Technology skills
The technology skills listed below are those assessed in National 5 Music Technology, although they may have been developed progressively from National 3 and 4 courses.
♦ selecting and using appropriate audio input devices ♦ applying appropriate microphone placement and techniques ♦ constructing the signal path for multiple inputs ♦ setting appropriate input gain and monitoring levels ♦ overdubbing a track ♦ applying creative/corrective equalisation ♦ applying time domain and other effects ♦ applying a range of mixing techniques ♦ editing tracks ♦ mixing down to an audio master in appropriate format

Technology concepts

	Technological terms	Processes	Controls and effects
National 5	glitch hum cyclical/loop playlist polar patterns (figure of eight, hypercardioid) sampler signal-to-noise ratio sound card spillage/leakage toolbox transpose	beat-matching digital processor drop in/out fade in/out import/export latency locators markers multi-effects processor quantisation vocal enhancer	auxiliary in(put)/out(put) (Aux) auxiliary send/return boost EQ/cut EQ chorus effect and depth close mic'd dB (decibels) gated reverberation (reverb) LFO limiter noise gate pitch bend punch in/out wah-wah/envelope filter
National 4	apps arrange window arrangement clipping feedback file management frequency response intro/outro lead vocal polar patterns (cardioid and omnidirectional) popping and blasting proximity effect sibilance take tempo	click track copy, cut and paste dry mix/wet mix effects pedals final mix general MIDI (GM) guide vocal input/output mute overdub peak sequencer signal path synchronisation (sync) WAV/AIFF file	compression/expansion effects (FX) fader line level microphone level tone control transport bar/controls
National 3	beat capture channel distortion/overload dry/wet frequency (hertz, kHz) microphone MIDI sequenced data session log track (names/list) virtual instrument tracks volume	backup copy format mix/mixing/balance normalising sampled save audio/stereo master USB (port)	delay EQ (equalisation) gain/trim mono(phonic) panning playback record reverb(eration) stereo(phonic) time domain

Music concepts

	Melody/harmony	Rhythm/tempo	Texture/structure/form	Timbre/dynamics
National 5	atonal cluster inverted pedal chromatic whole tone scale glissando modulation countermelody pitch bend tone/semitone	ritardando (rit) cross rhythms	strophic walking bass homophonic polyphonic coda bridge/link passage instrumental break	arco pizzicato rolls voices: mezzo-soprano, baritone
National 4	major/minor (tonality) broken chord/ arpeggio change of key pedal scale octave vamp scat singing	syncopation 2 3 4 6 4 4 4 8 anacrusis accel(erando) rall(entando) a tempo	binary — AB ternary — ABA verse and chorus (song structure) middle 8 imitation	woodwind instruments, string instruments, brass instruments, percussion instruments, bass guitar, distortion, muted, backing vocals, voices: S A T B
National 3	ascending descending step (stepwise) leap (leaping) repetition sequence improvisation chord chord change	accent/accented beat/pulse BPM (beats per minute) 2, 3 or 4 beats in the bar on the beat/off the beat repetition slower/faster pause drum fill	unison/octave harmony/chord solo accompanied/ unaccompanied repetition riff ostinato	acoustic/electronic striking (hitting), blowing, bowing, strumming, plucking acoustic guitar, electric guitar piano, organ, synthesiser drum kit voice/vocals crescendo (cres) diminuendo (dim)

Skills, knowledge and understanding included in the course are appropriate to the SCQF level of the course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level (www.scqf.org.uk).

Skills for learning, skills for life and skills for work

This course helps candidates to develop broad, generic skills. These skills are based on SQA's Skills Framework: Skills for Learning, Skills for Life and Skills for Work and draw from the following main skills areas:

3 Health and wellbeing

3.1 Personal learning

4 Employability, enterprise and citizenship

4.2 Information and communication technology (ICT)

5 Thinking skills

5.2 Understanding
5.3 Applying
5.4 Analysing and evaluating
5.5 Creating

These skills must be built into the course where there are appropriate opportunities and the level should be appropriate to the level of the course.

Further information on building in skills for learning, skills for life and skills for work is given in the course support notes.

Course assessment

Course assessment is based on the information provided in this document.

The course assessment meets the key purposes and aims of the course by addressing:

- breadth — drawing on knowledge and skills from across the course
- challenge — requiring greater depth or extension of knowledge and/or skills
- application — requiring application of knowledge and/or skills in practical or theoretical contexts as appropriate

This enables candidates to:

- apply knowledge from across the course, depth of understanding and listening skills to answer appropriately challenging questions about music and music technology concepts
- demonstrate aspects of challenge and application in practical contexts by planning, implementing and evaluating creative productions using music technology

Course assessment structure: question paper

Question paper 40 marks

The purpose of the question paper is to assess breadth of knowledge from across the course, depth of understanding, and listening skills.

The question paper requires candidates to use listening skills and to draw on and apply knowledge and understanding of a sample of all the technological terms, styles and genres, and music concepts listed in the 'Skills, knowledge and understanding for the course assessment' section of this document.

Candidates' knowledge and understanding of music and music technology will include and build on the technological terms, styles and genres, music concepts, controls, effects and processes from the National 3 and National 4 Music Technology courses.

The question paper has 40 marks (30% of the overall course award). It consists of questions relating to music excerpts in a range of 20th and 21st century styles and genres. A range of question types are used, assessing understanding of relevant music and technological concepts.

All questions in the paper are compulsory.

Setting, conducting and marking the question paper

The question paper is set and marked by SQA, and conducted in centres under conditions specified for external examinations by SQA. Candidates complete this in 1 hour.

Specimen question papers for National 5 courses are published on SQA's website. These illustrate the standard, structure and requirements of the question papers candidates sit. The specimen papers also include marking instructions.

Course assessment structure: assignment

Assignment 100 marks

The purpose of the assignment is to assess practical application of knowledge and skills from the course to plan, implement and evaluate creative productions using music technology.

The assignment comprises two meaningful and appropriately challenging tasks. The candidate is required to draw on and apply technological and musical skills and knowledge, at an appropriate level, developed throughout the course. The creative productions may be in any two appropriate contexts, such as (but not limited to) live performance, multi-track recording, radio broadcast, composing and sound design for film, audiobooks and computer gaming.

The completed products should clearly demonstrate application of knowledge and skills at an appropriate level (as defined in the 'Skills, knowledge and understanding for the course assessment' section of this document).

The assignment has 100 marks. Each of the tasks has 50 marks, providing a combined total of 100 marks (70% of the overall course award).

For each task, marks are awarded for:

Planning the production	10 marks
Implementing the production	30 marks
Evaluating the production	10 marks

Setting, conducting and marking the assignment

The assignment tasks are set by centres within the following SQA guidelines:

- The brief for each task must be agreed between the candidate and the teacher or lecturer.
- An appropriate task is meaningful and appropriately challenging, and requires the candidate to demonstrate technical skills, apply musical understanding in a creative way, and show understanding of context.
- Each task should allow the candidate to demonstrate all of the following technical skills:
  - selecting and making appropriate use of at least two microphones, with placement appropriate to the sound sources
  - selecting and making appropriate use of at least one of the following: direct line input, USB keyboard controller, MIDI controller or imported audio

- successfully and safely constructing the signal path for one or more inputs
- choosing and setting appropriate input gain and monitoring levels, with no distortion
- applying creative/corrective equalisation
- applying time domain effects and using compression or noise gate controllers
- applying mixing techniques including volume, panning and fade in/out
- editing tracks (for example to remove spillage)
- mixing down to an audio master in appropriate file format(s)

- Each production should involve a minimum of five parts, at least two of which should involve the use of a microphone.
- Each production should be between 1 and 3 minutes in length.

The teacher or lecturer should provide overall guidelines for the tasks and a list of questions, steps and/or prompts that will lead candidates through the task in clear stages.

The assignment assessment task provides several alternative exemplar tasks, each based on a different context. Centres may use or adapt these exemplar tasks to suit individual local needs, resources and circumstances, as long as the adapted tasks allow the candidate to demonstrate all of the technical skills listed above.

The assignment is conducted under some supervision and control.

Evidence is submitted to SQA for external marking. All marking is quality assured by SQA.

Assessment conditions

Time

This assignment will be carried out over an extended period of time in open-book conditions, allowing candidates to develop and refine their work before it is presented for assessment. Candidates should start their assignment at an appropriate point in the course.

Time is required for:

- preparing for the assignment, which could include considering exemplars and developing and practising required skills
- carrying out the stages of each task
- evaluating the process and completed products

Supervision, control and authentication

Under some supervision and control means:

- Candidates do not need to be directly supervised at all times.
- The use of resources, including the internet, is not tightly prescribed.
- The work an individual candidate submits for assessment is their own.
- Teachers and lecturers can provide reasonable assistance.

Resources

There are no restrictions on the resources to which candidates may have access while producing their assignment.

Reasonable assistance

Candidates must undertake the assessment independently. However, reasonable assistance may be provided prior to the formal assessment process taking place. The term 'reasonable assistance' is used to try to balance the need for support with the need to avoid giving too much assistance. If any candidates require more than what is deemed to be 'reasonable assistance', they may not be ready for assessment or it may be that they have been entered for the wrong level of qualification.

Reasonable assistance may be given on a generic basis to a class or group of candidates, for example, advice on how to develop a project plan. It may also be given to candidates on an individual basis. When reasonable assistance is given on a one-to-one basis in the context of something the candidate has already produced or demonstrated, it could be that it becomes support for assessment and centres need to be aware that this may be going beyond reasonable assistance.

Candidates can seek clarification regarding the wording of a brief, specification or instructions for the assessment if they find them unclear. In this case, the clarification should normally be given to the whole class.

As this assignment is a summative assessment, support and guidance during planning, implementation and evaluation stages should be limited to minimal prompts and questioning, referring the candidate to the instructions provided in the assessment task.

Evidence to be gathered

For each task, the following evidence must be included:

- a formal plan for the production, which includes explanations for all decisions relating to technological and musical aspects of the production (in written, electronic and/or oral form)
- the completed audio master (and, for the Foley and computer game tasks, the relevant video or game sequence)
- a progress record of the task (such as an electronic log or diary maintained by the candidate)
- a short report evaluating the production (in written, electronic and/or oral form)

Note that the record of progress may be handwritten, or kept in electronic form (word-processed document or blog entry), or spoken and recorded, or in any other appropriate format.

Volume

There is no word count.

Grading

A candidate's overall grade is determined by their performance across the course assessment. The course assessment is graded A–D on the basis of the total mark for all course assessment components.

Grade description for C

For the award of grade C, candidates will typically have demonstrated successful performance in relation to the skills, knowledge and understanding for the course.

Grade description for A

For the award of grade A, candidates will typically have demonstrated a consistently high level of performance in relation to the skills, knowledge and understanding for the course.

Equality and inclusion

This course is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

For guidance on assessment arrangements for disabled candidates and/or those with additional support needs, please follow the link to the assessment arrangements web page: www.sqa.org.uk/assessmentarrangements.

Further information

The following reference documents provide useful information and background.

- National 5 Music Technology subject page
- Assessment arrangements web page
- Building the Curriculum 3–5
- Design Principles for National Courses
- Guide to Assessment
- SCQF Framework and SCQF level descriptors
- SCQF Handbook
- SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work
- Coursework Authenticity: A Guide for Teachers and Lecturers
- Educational Research Reports
- SQA Guidelines on e-assessment for Schools
- SQA e-assessment web page

Appendix 1: course support notes

Introduction

These support notes are not mandatory. They provide advice and guidance to teachers and lecturers on approaches to delivering the course. They should be read in conjunction with this course specification and the specimen question paper and coursework.

Developing skills, knowledge and understanding

This section provides further advice and guidance about skills, knowledge and understanding that could be included in the course. Teachers and lecturers should refer to this course specification for the skills, knowledge and understanding for the course assessment. Course planners have considerable flexibility to select coherent contexts which will stimulate and challenge their candidates, offering both breadth and depth.

The National 5 Music Technology course engages candidates through practical music and sound production activities. Candidates develop their ability to express themselves through music and sound, encouraging creativity and autonomy. The course also enables candidates to gain knowledge and understanding of music and technological concepts. Across the course, skills and experiences which complement each other are developed.

Teachers and lecturers should ensure that candidates are fully aware of the range of skills, knowledge and understanding that they are developing in the course. These are laid out in full in tables in this course specification. Teachers and lecturers should also highlight any transferable learning throughout the course to candidates which supports the development of skills for learning, skills for life and skills for work.

Approaches to learning and teaching

The National 5 Music Technology course is particularly suited to a number of teaching methodologies. Teachers and lecturers should use an appropriate balance of these to deliver the course. Whole-class, direct teaching opportunities should be balanced by activity-based learning on practical tasks. Teachers and lecturers can actively involve candidates in developing their skills, knowledge and understanding by approaches such as peer teaching, individual and group presentations and investigatory tasks.

Learning should be planned so that skills are developed simultaneously with knowledge and understanding. Teachers and lecturers should plan teaching and learning experiences carefully to take account of the prior skills of candidates.

Formative assessment activities, used to support learning, can be blended with learning activities throughout the course. For example:

- using assessment information to set learning targets and next steps
- adapting teaching and learning activities based on assessment information
- boosting candidate confidence by providing supportive feedback
- using self- and peer-assessment activities wherever appropriate

Developing music technology skills topic

The focus of this topic is developing candidates' skills in:

- capturing audio from a range of sources
- using hardware and software to manipulate audio

Developing audio capture skills

Candidates are expected to develop the ability to use hardware and software to capture audio from a range of sound sources by:

- selecting and using appropriate audio input devices
- applying appropriate microphone placement and techniques
- constructing the signal path for multiple inputs
- setting appropriate input gain and monitoring levels
- overdubbing a track

During the early stages of delivering this topic, teachers or lecturers could introduce candidates to underpinning knowledge, such as the basic components of a sound wave including amplitude and frequency. Candidates should learn the basics of how a microphone converts a sound wave into a suitable signal for capture and storage on different mediums, for instance digital hard-drive or analogue tape. If a digital audio workstation (DAW) is available, it is beneficial to show candidates examples of different recorded sound waves as a visual aid to understanding differences in levels and frequencies.

Each centre should direct learning and teaching towards the equipment they have and should focus on the function and features of each part of the recording/mixing/editing system. If a centre has more than one type of recording set-up, candidates should be encouraged to investigate functions and features of each.

Teaching approaches should be varied and could include a mix of demonstration, teacher explanation, practical activities, group work and individual experimentation. Teachers or lecturers should encourage candidates to experiment with several different types of music and instrumentation when applying microphone techniques and to experiment with audio capture of other sound sources such as birdsong, classroom noise or nearby traffic for example. When recording music ensembles, teachers or lecturers should encourage candidates to play instruments for each other and assist each other with set-ups including microphone placement. Candidates should investigate different microphone placement techniques for different audio sources and should discuss the resulting recordings with their peers.

Candidates could benefit from working in groups where each member is allocated different responsibility from the others. One group member could be responsible for interconnecting recording equipment, another could deal with microphone placement, another could be responsible for setting recording levels and others may decide on the audio to be recorded, eg a rock band or brass quintet. Roles and responsibilities could be rotated as each new recording is made. Where there are candidates within a group who have prior knowledge and

experience of recording equipment, both hardware and/or software, they should be encouraged to assist the less experienced with recording and mixing techniques.

The focus is on developing a good range of essential skills, so recordings need not necessarily be completed works; short examples to demonstrate understanding and competence of the task are more appropriate.

Teachers or lecturers should emphasises the importance of health and safety and good practice when working with electrical and other equipment. Candidates should be taught how to correctly set up equipment so that cables and microphone stands etc do not create hazards.

Using hardware and software to manipulate audio

Candidates are expected to develop the ability to use hardware and software to manipulate audio from a range of sound sources by:

- applying creative/corrective equalisation
- applying time domain and other effects, including using compressions and noise gate controllers
- applying a range of mixing techniques, including volume, panning and fade in/out
- editing tracks, including removing spillage

A combination of practical activities and teacher or lecturer demonstrations could help candidates to develop these skills. Listening to examples of professionally recorded tracks enhances candidates' understanding of the various concepts. Teachers or lecturers should encourage candidates to experiment with different effects and mixing techniques and to critique each other's mixes.

Where possible, teachers or lecturers should make pre-recorded examples of varied audio recordings available for candidates to practice different mixing and manipulating techniques. This could allow for comparisons between professionally recorded material and the treatment by the candidate. The teacher or lecturer should demonstrate the function of the mixing set-up and should demonstrate how to apply equalisation both as a corrective tool and as a creative process. They should demonstrate how to use time domain effects to enhance the recording and should explain stereo imaging and the use of pan controls and faders to achieve a balanced and creative mix.

If centres have appropriate equipment, then candidates could combine both audio and MIDI tracks in a recording. Many editing techniques and functions are the same for both audio and MIDI in software-based DAWs, so using both together reinforces understanding of the editing software.

Once candidates have mastered the basic techniques and functions of the mixing and editing software they should be encouraged to work on mixes of material which they have recorded. Understanding is enhanced if the candidate attempts several contrasting treatments of the same recording and then evaluates each example.

As preparation for course assessment, candidates could be encouraged to keep session logs for each recording they complete, noting any changes made. This could include screen shots (which should be dated) to demonstrate progress within a recording or mix down. The log should reflect the session type, microphone placement and selection, track lists and timings.

Useful resources

Each centre has different resources. Typical resources for this topic could include:

- dynamic and condenser microphones with stands
- appropriate cabling for microphones, other audio input/sound sources and monitors
- multi-track recording/editing/mixing equipment
- monitoring system
- outboard or built in effects processors and EQ

There are many different recording systems available, some stand-alone and others computer-based. Some of the most popular software-based recording packages currently are Pro Tools, Logic, Reason, GarageBand and Ableton Live. Other products are also suitable, including apps for mobile devices.

Candidates would benefit from access to a digital audio workstation (DAW) based around a computer with appropriate software and hardware. A suitable system might include:

- a computer with at least 4GB of RAM
- a hardware audio interface with a minimum of three microphone inputs and line inputs
- a hardware audio interface with stereo output
- appropriate cabling for microphones, other audio sources and monitors
- a MIDI keyboard
- a monitoring system
- headphones
- recording/sequencing software with effects/EQ plugins
- an external digital storage device

Developing understanding of 20th and 21st century music topic

The focus of this topic is developing candidates' ability to:

- describe how technological developments relate to 20th and 21st century music
- use listening skills in the context of 20th and 21st century music

Describing how technological developments relate to 20th and 21st century music

Candidates are expected to develop the ability to describe how technological developments relate to 20th and 21st century music by:

- describing a range of genres and styles
- describing the main technologies used by a range of genres and styles
- explaining, in simple terms, the need to protect intellectual property

Developing listening skills in the context of 20th and 21st century music

Candidates are expected to develop listening skills in the context of 20th and 21st century music to enable them to:

- identify examples of a range of genres and styles and their main attributes
- identify examples of a range of relevant music concepts

These listening skills are best developed in an integrated way.

Genres and styles

Teachers or lecturers should give candidates the opportunity to study a variety of music styles that have been used and become popular at different points in the 20th and 21st centuries. Appropriate genres for study at National 5 include (but are not limited to) rock 'n' roll, Scottish/Celtic rock, 60s pop, punk, country music, hip hop and musicals. This study should incorporate the development of musical instruments and the methods used to record music over this period. In addition, genres and styles covered at National 3 and National 4 level should be revised and consolidated. The full list of these is included earlier in this course specification.

Candidates should become familiar with a range of technological developments, which might include relevant examples from: player pianos, acoustic horn/cylinder, wax cylinders, gramophone records, vinyl LPs, 45 rpm records, radio, juke box, CD players, MP3 players, electric guitar (solid body), electronic organ, reel-to-reel magnetic tape, stereo LPs, guitar pick-up, 8-track recording/multi-track recording (analogue and digital), audio/MIDI interface, virtual instruments, performance software, stereo LPs, bass guitar, electronic drum kit, cassette recorder/player/tape, DJ decks/mixer, minidisc, sequencer, streaming audio.

Music concepts

Candidates should be able to describe and identify a range of music concepts, including those listed below.

Melody/harmony	Rhythm/tempo	Texture/structure/form	Timbre/dynamics
atonal cluster inverted pedal chromatic whole tone scale glissando modulation countermelody pitch bend tone/semitone	ritardando (rit) cross rhythms	strophic walking bass homophonic polyphonic coda bridge/link passage instrumental break	arco pizzicato rolls voices: mezzo-soprano, baritone

In addition, music concepts covered at National 3 and National 4 level should be revised and consolidated. The full list of these is included earlier in this course specification.

Learning activities

Learning activities could include:

- giving candidates the opportunity to experience an appropriate range of music, relating the styles of music to social backgrounds of the time, the mechanical means by which new music could be heard by a wider audience and the impact the music had on listeners' lives; particularly appropriate genres could include country music or punk
- candidates could develop their listening skills by using worksheets to describe their impressions of music they hear, their personal responses to music, the musical instruments and the geographic and cultural context of music — examples could include Celtic rock music and the use of technology in mixing for live gigs and recording various line-ups or music, culture and instruments of 1960s
- the study of specific elements of genres such as rock 'n' roll and social protest in America or the Liverpool sound and its effect on British pop music
- class discussions as a follow-on to a teacher- or lecturer-led analysis of a selected style based on varied critical reaction to listening experiences within the class; more controversial genres such as punk could be studied
- the identification of technology as it is used in musicals with reference to appropriate equipment such as microphones, effects, PA systems and mixing desks using examples from popular works, possibly including school productions
- individual, short responses to a piece of music to be used as discussion material for a group or a class where the writer bases research on a key innovator in a particular genre and discusses the technologies used; examples could be Chuck Berry or Bill Haley's influence on rock 'n' roll including the line-up of groups and the sound quality of vinyl records
- candidate review sessions where individuals or groups create questions for the rest of the class based on their choice of genre such as the musical form and effects used in hip hop

- a paired discussion based on a teacher- or lecturer-led lesson where the findings of the discussion can be shared with the rest of a class; this could be based on the development and use of particular type of technology and which groups of musicians used it, eg reel-to-reel magnetic tape or 8-track and multi-track recording equipment
- individual, short responses to a piece of music and the technology used to create or recreate it to be used as discussion material for a group or a class
- responses to film music where a selected genre, such as rock 'n' roll, is evident

Intellectual property

Teachers or lecturers should guide candidates to explore music copyright in order that they can understand and then explain, in simple terms, the need to protect intellectual property. Teachers or lecturers may describe current copyright legislation and explain the process of obtaining copyright clearance.

Teachers or lecturers may present relevant case studies of copyright infringement with examples of music to encourage class discussion. In small groups candidates could investigate high-profile cases where the proper copyright clearance procedures were not followed so that they can gain an understanding of the potential consequences of not obtaining the appropriate license and clearances.

Candidates must be aware of, and adhere at all times to the requirements of current legislation in relation to the creation, performance and use of music/samples and other forms of intellectual property. Candidates should investigate and suggest possible courses of actions to avoid copyright infringement.

Useful resources

A suggested range of resources for the understanding 20th and 21st century music topic include:

- good quality audio playback facilities with stereo speakers
- decent quality headphones for individual work
- computer systems with appropriate software for the playing of CDs and DVDs
- access to the internet for individual and group research including the Performing Arts Resource Guide in the Library of Congress (Washington DC), archival sound recordings in the British Library, mixing with BBC sound engineers and downloadable materials from popular sites
- photographic evidence of recording and playback devices used during the period of study
- access to recordings of televised documentary programmes that deal with specific genres from the period of study
- interactive classroom boards for presentations to a group or class
- a range of CDs and DVDs that demonstrate the variety of music styles through the 20th and 21st centuries
- personal music players for playing-back downloaded music
- where available, music scores of appropriate examples from different genres
- textbooks, CD and DVD cover notes, programme notes for reference and support purposes

Music technology contexts topic

The focus of this topic is developing candidates' ability to produce audio masters in different contexts. Candidates are expected to do this by:

- applying a range of skills in audio capture
- applying a range of skills to manipulate audio and sequenced data
- mixing down to an audio master in appropriate file format(s)

Candidates could produce several short pieces of work, in a range of contexts, to develop their ability to capture sound, manipulate it, and then mix it down to an audio master.

Suitable contexts could include:

- recording a live rock band including at least one overdub
- multi-tracking a musical ensemble (rock band, folk group etc)
- recording a choir or ensemble
- creating a short soundtrack for a film
- producing a short radio broadcast
- arranging or composing using a MIDI program
- producing sound effects for drama
- recording narration of a story or poem, and adding music
- creating an advertising jingle
- making use of samples and loops for remixing

Candidates must complete two pieces from different contexts for the assignment, but they will benefit from investigating a wide a range of contexts, then choosing two to work on.

Candidates may find it helpful if they are given realistic examples of acceptable and achievable creative projects. Teachers or lecturers could select and describe short sequences from some of the following media: film, television, radio, animation and computer games. Teachers or lecturers could also lead class or group discussions to analyse possible reasons for the choice of sounds and music, eg to set the mood, establish environment, support narrative, establish character, convey emotions, create and support transition.

Through discussion, the teacher or lecturer could involve the candidates in creating a sound design map which clearly identifies the sound and music placed in the sequence viewed. This could be in a linear depiction, timeline, or storyboard. This process would allow candidates to develop their understanding of how various sounds and music supports the narrative/image, sets the mood, establishes environment, convey emotions, and how it can establish character. This can also provide an example framework for candidates to use in the planning stages of the assignment.

Candidates could be divided into small groups and given a short sequence from a film. Through collaboration they could decide what form of sound design map they will produce for this task, then present and discuss their findings. Individual candidates are prepared to then plan and execute a sound design map for their selected creative production.

Candidates could analyse audio clips to explore production techniques used in 20th and 21st century music and incorporate these approaches into their projects. Candidates can explore genres of personal interest, but teachers or lecturers should have some input at this level.

Candidates must ensure that all intellectual copyright for music produced and selected for their project has not been infringed.

Through well-chosen examples, teachers or lecturers could demonstrate the manipulation of loops and samples. Building up beats, bass parts and programming filter sweeps and other virtual instrument controllers would provide candidates with new perspectives on the scope and use of sequencing within larger DAW software.

Candidates are expected to use skills developed throughout the course to set up and dismantle equipment, and to observe industry conventions and standards on health and safety at all times. For example, when using microphones, candidates should be aware that microphone polar patterns, techniques and placement are critical to the capture/recording quality and that the exact placement and application is dependent on factors such as acoustic environment, instrumentation and performer.

Teachers or lecturers can informally steer candidates towards good practice in using microphones, recording and mixing techniques through encouraging access to web-based resources, and developing links with other candidates through, for example, GLOW groups and blogs and by following up individual interests in the techniques used by notable practitioners.

The appropriate use of equalisation and panning, developed earlier in the course, should be applied in a variety of contexts. Candidates could be given an audio session and tasked with setting the EQ on each track; the teacher or lecturer would observe, giving support and guidance. Candidates could then bounce tracks to an audio master as part of their e-portfolio.

Candidates should be taught how to use dynamic processors, such as compressors and limiters, through demonstrations explaining the purpose and application of the controls. Candidates can apply compression appropriately to tracks within their audio session.

Candidates could listen to and analyse short clips from a variety of sources which exemplify typical and creative application of time domain effects. Teachers or lecturers could supplement this by demonstrating different effects on selected tracks. Candidates could then apply an effect(s) to the tracks within their audio session and bounce down to an audio master.

Journal of progress and reflection

Teachers or lecturers should encourage candidates to maintain a journal which could be in the form of a written journal, blog, or diary. This should include:

- a timeline of progress through planning, creating, and producing the end product
- reflections on their accomplishments

This journal is good preparation and practice for the assignment.

Sequencing and delivery

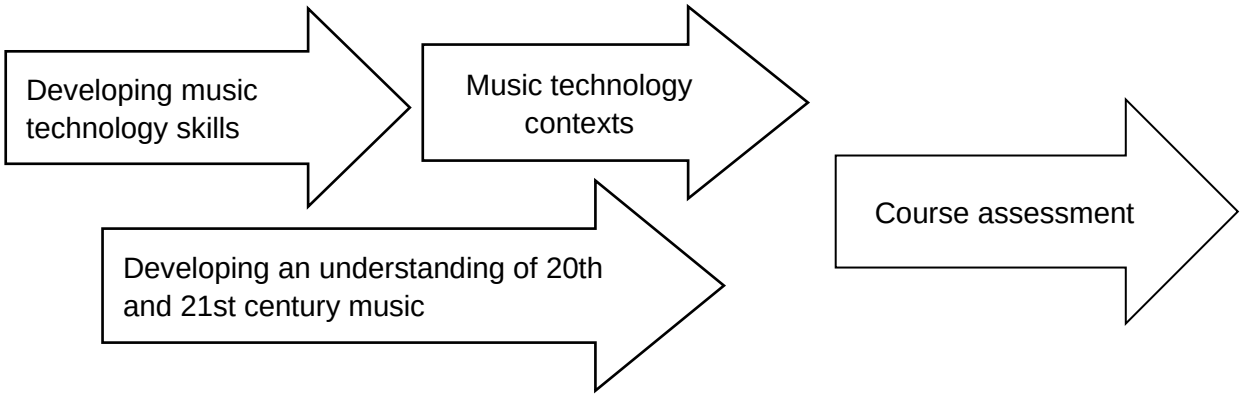
There are many different ways to deliver the National 5 Music Technology course. The following information provides some advice on possible approaches.

Delivery approach 1: sequential delivery of the three main topics

The three main topics — developing an understanding of 20th and 21st century music, developing music technology skills, and music technology contexts — could be delivered independently and individually over the duration of the course. However, some integration and blending of topics would be appropriate.

Delivery approach 2a: concurrent delivery of main topics

This approach allows technology skills to be developed concurrently with the relevant music understanding, and is a straightforward way of building up skills and knowledge, culminating in the course assessment (assignment and question paper).



Developing music technology skills could be the starting point for the course. Through this topic, candidates develop the essential technological skills and knowledge for the course. Candidates are introduced to the relevant hardware and software required to capture audio. This could include using a microphone, inputting notes using a MIDI sequencing program, or recording an electric guitar directly into a computer. A wide range of skills should be taught during these processes — selecting appropriate microphones and placements, setting gain levels, ensuring instruments are tuned, inputting MIDI data, etc. Once captured, candidates should manipulate and edit the sound(s) using appropriate processes and effects.

Learning could be based around short demonstrations, followed by hands-on candidate activities.

While developing basic skills through the developing musical technology skills topic, candidates can begin to develop their music knowledge and listening skills through another topic — developing an understanding of 20th and 21st century music.

In the developing an understanding of 20th and 21st century music topic, candidates study a range of styles and genres of music. Technology concepts are also explored and candidates begin to understand the influence of music technology on music, and conversely, how music has influenced music technology. Candidates could individually research key innovators, who have led the way in these developments, and then present their findings to peers.

The music technology contexts topic builds on the practical skills and relevant concepts from the other two topics. Candidates bring these together to produce short pieces of work in a variety of contexts. Possible contexts include recording a rock band, recording a choir, creating a short soundtrack for a film, a short radio broadcast, arranging or composing using a sequencing program, producing sound effects for drama, combining narration of a story or poem with some music, creating an advertising jingle, and using samples and loops for remixing. This would be valuable preparation for the assignment.

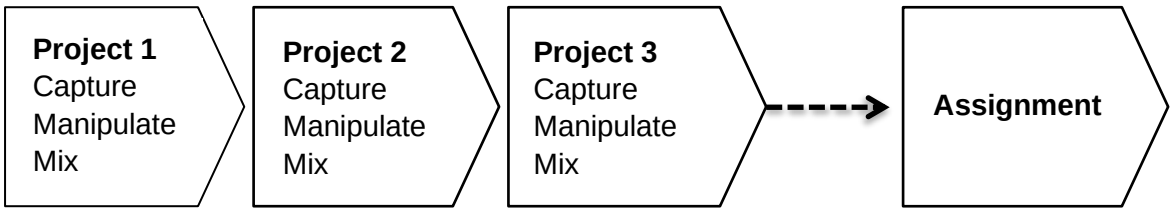
Delivery approach 2b: mix first, capture later

In delivery approach 2a, described above, candidates start by learning how to capture sounds, then how to manipulate them, and finally how to mix them to produce a finished product. An alternative, and equally valid, approach is to develop skills of manipulating and mixing first, using supplied audio files. The skills of capturing audio, involving choosing appropriate devices, microphone placement and designing signal paths would be developed later.

Where resources are limited, a combination of delivery approaches 2a and 2b may be necessary, with different groups carrying out practical activities in different sequences, to overcome limited access to computers or sound capture equipment.

Delivery approach 3: integrated approach using series of mini-projects

An alternative method of delivery could involve a series (more than the three shown in the diagram below) of mini-projects, each building additional technical skills and knowledge.



Each project could include some new aspects of audio capture, audio manipulation and mixing, and be presented in a new context. Candidates could work in small groups on different projects at the same time. This approach would allow school events (concerts, shows, etc) to be incorporated naturally into the course delivery, with possible opportunities for inter-disciplinary working. Gradually, over the duration of the course, skills and understanding would be developed to the stage where candidates were ready to undertake the assignment.

Understanding of 20th and 21st century music could be developed as a separate but concurrent strand, or it might be possible to integrate some or all of the learning into carefully chosen projects.

Note: combining delivery of the Music Technology course with the Music course

The similarity in structure of the Music Technology and Music courses, and the fact that both courses require candidates to spend significant amounts of time working alone or in groups, with the teacher often working as a facilitator, mean that it might be possible in exceptional circumstances, with very careful and detailed planning, to deliver both courses simultaneously to a very small mixed group of candidates.

Preparing for course assessment

This course has additional time which may be used at the discretion of the teacher or lecturer to enable candidates to prepare for course assessment. This time may be used near the start of the course and at various points throughout the course for consolidation and support. It may also be used towards the end of the course, for further integration, revision and preparation for course assessment.

Within the notional time for the course assessment, time is required for:

- preparing for the assignment tasks
- carrying out the stages of the assignment tasks
- assessing the process and completed solution
- consolidating learning
- preparing for the question paper

The 'approaches to learning and teaching' section contains detailed suggestions and strategies for preparing candidates for the assignment and question paper.

Developing skills for learning, skills for life and skills for work

Course planners should identify opportunities throughout the course for candidates to develop skills for learning, skills for life and skills for work.

Candidates should be aware of the skills they are developing and teachers and lecturers can provide advice on opportunities to practise and improve them.

SQA does not formally assess skills for learning, skills for life and skills for work.

There may also be opportunities to develop additional skills depending on approaches being used to deliver the course in each centre. This is for individual teachers and lecturers to manage.

The following table highlights some opportunities to develop these skills during this course.

3	**Health and wellbeing**	
3.1	Personal learning	♦ researching information about microphone types ♦ exploring the effects of changing microphone placements ♦ researching information about selected genres and styles ♦ considering the impact of intellectual property legislation on case studies and own practice ♦ researching information about a range of contexts where music technology may be used
4	**Employability, enterprise and citizenship**	
4.2	Information and communication technology (ICT)	♦ using hardware and software to capture and manipulate audio ♦ interfacing audio capture equipment with computer systems ♦ using search engines to research technological developments, genres and styles ♦ producing text-based and audio-visual reports on research findings
5	**Thinking skills**	
5.2	Understanding	♦ explaining the purpose and effects of a range of ways of manipulating audio ♦ using knowledge of genres and styles to identify examples in music excerpts ♦ using knowledge of music concepts to identify examples in music excerpts
5.3	Applying	♦ making appropriate choices of input devices ♦ applying a range of audio manipulation techniques ♦ explaining the application of intellectual property legislation in the music industry ♦ applying skills and knowledge in new contexts
5.4	Analysing and evaluating	♦ reflecting on results of tasks, and making appropriate improvements
5.5	Creating	♦ producing an audio master

The course may also provide opportunities to develop or consolidate other skills for life, learning and work, including:

- ♦ reading and writing
- ♦ working with others
- ♦ enterprise and citizenship

Appendix 2: online resources

Online resources (websites, microsites, wikis, newsfeeds, databases, etc) can provide a valuable source of easily accessible and up-to-date information on a wide range of music technology hardware, software and topics. Some suggested online resources are listed below.

Websites	Resources
Intellectual property	
PRS for Music	Information about licensing
Association of Independent Music	Wide range of advice and downloadable resources
British Academy of Songwriters, Composers and Authors (BASCA)	Downloadable paper on intellectual property in educational resources section
The British Recorded Music Industry (BPI)	Useful glossary of terms, and information on copyright, in visitors area
Merlin Network (merlinnetwork.org)	Copyright protection agency for musicians
Musicians' Union (MU)	Wide range of advice for professional musicians
PPL	Information for performers and music makers
UK Music	Supporting the UK music industry
Ofcom	Information on broadcasting licences
Microphones and recording	
Shure www.shure.co.uk/discover/educational	A website with microphone technique tutorials
Shure blogs blog.shure.com/multi-pattern-microphones-what-where-and-how/	Information on microphones, polar patterns and other general advice
Planet of Tunes	General website with sections on sound theory, sound recording, MIDI sequencing and much more
Making your microphone placement work	Audio recording tutorials with useful hints and tips
General information	
SAE Institute	Follow link to reference library for a wide range of useful documents on audio technology
Renaissance Recording Studio, Nashville homepage	Sections on microphone technique, tracking tips and mixing tips
120 Years of Electronic Music: The history of electronic music from 1800 to 2015	Useful website for information about music technology developments
Royalty-free music and sound effects	
Stonewashed AudioMicro	Sources of royalty-free music and sound effects which can be used in tasks and projects

Administrative information

Published: May 2023 (version 3.0)

History of changes to course specification

Version	Description of change	Date
2.0	Course support notes added as an appendix.	July 2017
3.0	Assignment marking instructions removed and will be published in the coursework assessment task document.	May 2023