Unit 32: Sequencing Systems and Techniques

Unit code: J/600/6945

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

The aim of this unit is to develop learners' knowledge of music sequencing software and the transferable skills that facilitate the realisation of musical ideas in both audio and MIDI environments. Learners will develop the skills to set up, use and discuss sequencing systems and techniques.

Unit introduction

The digital age has seen computers take centre stage in music production environments. The wealth of software tools and the power of computer-based systems has led to ' virtual studio' environments capable of producing recordings of a quality only previously available from expensive hardware–based systems, and at a fraction of the cost.

Audio sequencing tools have put a vast range of creative possibilities into the hands of composers and performers of music, and created an environment where, alongside traditional composition methods, the manipulation of pre-existing sound is accepted as a valid starting point for creation.

In this unit learners will create a portfolio of music using the tools available with the major sequencing software packages. Learners will work with audio-based sequencing, each of which has a vast range of techniques that can be utilised in the production of modern music. Learners will be expected to create a range of music that demonstrates how these tools can be used. It is expected that those attempting this unit will be musically creative and can originate ideas using the software and hardware explored in the unit. They should be able to create musical ideas from a blank canvas, as well as manipulate existing musical ideas with the intention of putting their individual stamp on the material they have been given to work with. As they create their portfolios, learners will develop their knowledge by incorporating a wide range of sequencing techniques, and will be able to make decisions as to the correct tool or skill needed for each situation.

Learning outcomes

On completion of this unit a learner should:

1 Be able to set up a computer and peripheral MIDI hardware safely

2 Be able to realise musical ideas using MIDI sequencing skills

3 Be able to realise musical ideas using audio sequencing skills

4 Understand the terminology associated with music sequencing techniques.

Unit content

1 Be able to set up a computer and peripheral MIDI hardware safely

Hardware as appropriate to the system being used: eg keyboard, sound module, interface, controller keyboard, mixer, cables, computer, sequencing software

2 Be able to realise musical ideas using MIDI sequencing skills

MIDI sequencing skills: inputting MIDI data eg real-time performance, step-recording, clicking in; editing MIDI events eg inserting and deleting notes and events; pitch, note length, placement, velocity; quantization

Stylistic interpretation: tempo track; choosing and combining sounds; controlling expression eg track automation, controllers; controlling timbre eg automation of instrument parameters, filter cut-off

Arrangement: eg markers, control of structure, awareness of sections, building parts, control of texture, introduction, ending

3 Be able to realise musical ideas using audio sequencing skills

Audio sequencing skills: capturing and editing audio data eg recording audio files, cut, copy and paste techniques, loop manipulation, offline and online processing, software-sampling techniques, track automation

Stylistic interpretation: tempo track; manipulation of tempo eg time-stretching, slicing, beat-marking; choosing and combining sounds; controlling expression eg track automation; controlling timbre eg automation of instrument parameters, filter cut-off

Arrangement: eg markers, control of structure, awareness of sections, building parts, control of texture, introduction, ending

4 Understand the terminology associated with music sequencing techniques

Terminology relating to generic techniques: recording; editing; recording audio; editing audio; instrument editing; mixing; external and internal control; bouncing down

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria					
To achieve a pass grade the evidence must show that the learner is able to:		**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**		**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**	
P1	set up a computer and peripheral MIDI hardware safely and competently with limited tutor support [IE, CT, SM]	**M1**	set up a computer and peripheral MIDI hardware safely and competently with total independence	**D1**	set up a computer and peripheral MIDI hardware safely and competently demonstrating mastery of the processes involved
P2	realise musical ideas using MIDI sequencing skills [CT, RL, SM, EP]	**M2**	realise musical ideas using MIDI sequencing skills competently	**D2**	realise musical ideas using MIDI sequencing skills with confidence and flair
P3	realise musical ideas using audio sequencing skills [CT, RL, SM, EP]	**M3**	realise musical ideas using audio sequencing skills competently	**D3**	realise musical ideas using audio sequencing skills with confidence and flair
P4	explain the terminology associated with music sequencing techniques. [IE, RL, SM]	**M4**	illustrate the terminology associated with music sequencing techniques.	**D4**	analyse the terminology associated with music sequencing techniques.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

This unit is aimed at developing music producers and performers. The essential role of computer-based systems in contemporary music production should be explored in depth, and learners encouraged to focus on the practical benefits of a high level of familiarity with the technology and techniques involved. The exploration of the tools and techniques available to users of sequencing programs will underline their essential role in the creation of modern music. Please note that terminology varies from software to software and reference should be made to manufacturers' manual and training materials.

This unit should be delivered in practical workshop sessions. Learners should have access to up-to-date sequencing software that provides a wide range of functionality, including timeline-based sequencing, detailed editing of audio and a wide range of built-in resources (audio loops and samples, instruments, effects etc). Learners should have sufficient access to sequencing facilities outside of contact time to enable them to develop the evidence required.

Group sizes should be kept to a level that allows tutors to engage in regular contact with learners who may be spending significant amounts of time isolated through headphone use. A classroom management system should be in place that supports this style of activity. It is therefore essential that the whole group balance individual learning with regular reviews of work in progress. Reflective and peer review will inform this process as well as the creation of the portfolio itself.

It is likely that some project work will provide evidence that meets more than one learning outcome. It is probable that work of this nature will take place in the later stages of the unit, after a range of techniques has been learnt. A portfolio containing a range of music appropriate for each individual learning outcome is an alternative way of satisfying higher levels of the grading criteria. By this stage learners will be creating projects that use a wide variety of MIDI and audio resources and should, therefore, be aware of how to backup and transfer their work.

Finally, learners should be encouraged to 'practise' their sequencing skills wherever possible. It is vital that they see how the ability to use sequencing software underscores much of the work they will be undertaking in other units.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction to the programme and structure of the programme of learning.
Connecting and configuring – learning outcome 1; tutor-led workshops in: • identifying components • connecting components • configuring software and hardware • testing the setup.
Assignment 1: Setting up Computer-based Systems – P1, M1, D1 Tutor-observed practical assessment.
Assignment 2: Sequencing Portfolio – P2, M2, D2, P3, M3, D3 Practical work/resource-based learning.
Understanding the terminology of sequencing – learning outcome 4; tutor-led workshops to cover: • terminology • working with screenshots.
Assignment 3: Sequencing Report – P4, M4, D4 Practical work/resource-based learning.

Assessment

The musical applications of sequencing can be many and varied but it should be remembered that it is the application of sequencing techniques that is being assessed rather than compositional skills, which are covered in other units. Therefore a musically successful composition that makes little use of sequencing techniques (an unedited recording of a free-form improvisation for example) is not likely to achieve the higher grades.

Learning outcome 1 will be evidenced by learner demonstration. For P1, learners will successfully set up the workstation. The degree of independence with which learners are able to complete the process should be recorded by tutor observation in order to distinguish between those meeting grading criterion 1 at pass level and those working at merit level. Tutor questioning can be used to determine the level of understanding necessary to assess grading criterion 1 at distinction level.

Learning outcomes 2 and 3 require the creation of a portfolio of music using sequencing techniques. To address grading criteria 2 and 3 at pass level learners should demonstrate some of their skills listed in the unit content. Evidence for grading criteria 2 and 3 at merit level will show that learners are applying sequencing techniques in ways that are fit for purpose, and that they are beginning to use alternative techniques to achieve equivalent results. Distinction level learners will demonstrate mastery of sequencing skills, to the extent that their music demonstrates imagination, creativity and flair that is not inhibited by technical limitation.

Assessment evidence is likely to comprise a portfolio of music that demonstrates that the grading criteria have been met.

The evidence for learning outcome 4 will be provided by the demonstration of understanding of sequencing terminology. For P1, learners will provide explanations of the specified terminology (see *Unit content*). At merit level these explanations will be supported by reference to tools found in the sequencing software. Distinction level learners will be assessing the success with which each tool performs its function, and comparing different methods of achieving similar results (eg the control of volume using track automation compared with MIDI continuous controllers), referring correctly to the terminology at all times to support their arguments.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Pearson assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1, D1	Setting up Computer-based Sequencing Systems	Connect and configure the elements of a computer-based sequencing system using appropriate cables, with strict adherence to health and safety guidelines.	Evidence to include: • video evidence.
P2, M2, D2 P3, M3, D3	Sequencing Portfolio	Create a portfolio of music, containing a minimum of one project based on MIDI techniques and one project based on audio techniques.	Evidence to include: • portfolio with projects bounced to stereo audio files.
P4, M4, D4	Sequencing Report	Prepare a written report detailing the techniques used in the creation of their portfolios.	Evidence to include: • written report • appropriate screenshots.

Links to other BTEC units

This unit forms part of the BTEC Music and Music Technology sector suite. This unit has particular links with the following unit titles in the BTEC Music and Music Technology suite:

Level 1	Level 2	Level 3
		Composing Music
		Sound Creation and Manipulation
		The Functional Music Keyboard
		Working with Music Notation Packages

Essential resources

For most of the unit, learners will need classroom/workshop sessions where they are able to apply the skills demonstrated by their tutor in the preparation of their own work, and request assistance where appropriate. Classrooms will need to be equipped to an appropriate standard, with modern, reliable computers running up-to-date audio/MIDI sequencing software that provides a wide range of functionality including timeline-based audio/MIDI sequencing, detailed editing of audio and MIDI data and a wide range of built-in resources (MIDI and audio loops and samples, instruments, effects, etc), access to adequate monitoring for demonstration and private study, projection and printing facilities.

A range of external hardware (including sound sources) should be available, together with MIDI controller keyboards, appropriate cables and means by which the sounds produced by both computer and external sound sources can be monitored.

The classroom will also need facilities for the creation of written reports utilising screenshots or equivalent.

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	setting up MIDI equipment
Creative thinkers	realising music using sequencing software
Reflective learners	responding to feedback during the creative process
Self-managers	working towards a deadline
Effective participators	planning creative projects.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	writing reports
Creative thinkers	setting up MIDI systems
Reflective learners	responding to feedback on their report writing
Self-managers	working on more than one assignment at the same time
Effective participators	deciding how to use sequencing skills to realise their creative ideas.

Functional Skills – Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	realising music using sequencing software
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	realising music using sequencing software
Manage information storage to enable efficient retrieval	realising music using sequencing software
Follow and understand the need for safety and security practices	configuring MIDI software
Troubleshoot	configuring MIDI software
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	writing reports
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	writing reports
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	writing reports
Bring together information to suit content and purpose	writing reports
Present information in ways that are fit for purpose and audience	writing reports
Evaluate the selection and use of ICT tools and facilities used to present information	writing reports

Skill	When learners are …
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	contributing to 'critique'-based peer feedback sessions
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	writing reports.