CCSMT11
Produce audio materials using sampling and synthesis technology for music and sound industries

Overview

Sampling and synthesis are processes used to produce audio materials. Samplers are used to trigger audio material. Synthesisers are generally either used to reproduce and edit the sound of traditional instruments or to create more diverse electronically based sounds or effects. Sound engineers need to understand both processes.

This standard is about having an informed understanding of the features, operation and applications of samplers and synthesisers. You will make a detailed study of subtractive synthesis and associated parameters You will be required to evaluate the relative merits of software and hardware implementations of sampling and synthesis with MIDI sequencers. You must show a basic understanding of the nature of combining original synthesized and sampled parts within an audio/MIDI software sequencing package.

The use of a MIDI keyboard to trigger samples presents a different set of creative opportunities than simply locating sounds via the screen of an audio/MIDI sequencing package.

Both hardware and software based Samplers should be used creatively to trigger audio material such as loops, sound effects, musically pitched notes or other traditional instrumental sounds. Synthesisers will be used to reproduce and edit the sound of traditional instruments or to create more diverse electronically based sounds or effects.

You will be required to save and load patches from synthesizers and samplers either via internal software systems/drives/disks or by using MIDI Dump where necessary. MIDI Dump will be covered when using hardware systems to ensure the security of parameters held in internal memory systems.

Additive, subtractive, FM, AM, granular and wavetable synthesis should all be utilised using both software and hardware synthesisers.

This standard will enable you to evaluate the relative merits of software and hardware implementations of samplers and sequencers. You will be required to use both hardware and software based samplers and synthesisers to demonstrate good knowledge and understanding of this complex subject.

This standard utilises the multi tasking skills expected of today's recording engineers and programmers.

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Performance criteria

You must be able to:

P1 operate hardware and software synthesisers
P2 identify sound characteristics of a range of synthesis types
P3 operate hardware and software samplers
P4 use samplers and synthesis with MIDI sequencers
P5 adjust parameters of subtractive synthesisers
P6 monitor differences in sound from different types of synthesis
P7 adjust program and sample parameters of hard/soft samplers
P8 adjust program and sample parameters of hard/soft synthesisers
P9 connect samplers to the output of MIDI sequencers
P10 connect synthesisers to the output of MIDI sequencers
P11 create, Save and load sampler patches and programs
P12 create, Save and load synthesiser patches and programs
P13 save and archive all materials created and recall materials saved

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Knowledge and understanding

You need to know and understand:

K1 the requirements for setting up MIDI within an audio/MIDI sequencer
K2 the function and parameters of additive, subtractive, FM, AM, granular and wavetable synthesis
K3 the basic principles of the various common types of synthesis
K4 the differences in sound between types of synthesis
K5 the differing uses, contexts and methods for synthesis types
K6 the limitations of the differing synthesis types
K7 common sampler functions
K8 common synthesis functions (all types)
K9 advantages and disadvantages of hardware based and software based synthesisers
K10 advantages and disadvantages of hardware based and software based samplers
K11 how systems are implemented to integrate a MIDI sequencer, sampler and synthesiser
K12 full archiving procedures

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Relevant occupations	Recording Engineers; recording Producers; mix engineers; assistant engineers; programmers; writers; composers; tape ops; assistants;
Suite	Music Technology
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