

MTEC 53B: AUDIO PLUG-INS & VIRTUAL INSTRUMENTS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	4
Hours:	3 lecture, 3 laboratory per week (72 total per quarter)
Advisory:	Not open to students with credit in MUS 81E.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Description

Audio processing, mixing techniques and sound design using software plugins and hardware equipment. Study and compare plugins from different manufacturers. Drum and percussion libraries, sample triggering and audio quantizing techniques. Apply Melodyne and Auto-Tune pitch correction, EQ and compression, Elastic Audio editing. Create sounds with synthesizers, samplers, drum machines and virtual instruments. Apply traditional synthesis techniques, including filters and oscillators with audio plugins, hardware synthesizers and software emulations of acoustic instruments. Sound restoration plugins, forensic audio enhancement, convolution reverbs, advanced plugin automation and signal processing techniques. Exercises include sound design plugins for music, film, and video games.

Course Objectives

The student will be able to:

- Apply AAX, RTAS and AudioSuite plugins directly to a track or clip in a multitrack Pro Tools session.
- Modify plugin configurations utilizing internal buss paths and aux tracks in a multitrack recording.
- Explain frequency based, time based, pitch based and modulation based techniques as standardized in the modern recording industry.
- Create a master stereo audio file and apply various styles of signal processing to the final, deliverable mix.
- Correct pitch intonation discrepancies on mono and polyphonic material.

Course Content

- Applying AAX, RTAS and AudioSuite plugins to a Pro Tools session.
 - Use and application of all Avid distributed plugins.
 - Use and application of all McDSP distributed plugins.
 - Antares Auto-Tune.
- Creative application of AAX plugins.
 - Applying Elastic Audio plugin algorithms: rhythmic, monophonic, polyphonic.
 - Groove Extraction to conform audio regions and MIDI data.
 - Signal path strategies for summing multiple processors into cohesive sound fields.

- Using playlists to edit multiple views of automation data.

Lab Content

Lab content includes topics such as:

- Microphone modeling with DSP (digital signal processing)
- Gain settings
- Monitor system setup
- Amplification calculations based on system requirements
- Other items may include subjects such as number of plugins per insert track, bus assignments for efficient recording operation, and mastering compression settings

Special Facilities and/or Equipment

A. When taught on campus:

- Classroom with 31 Avid Pro Tools systems and appropriate versions of Pro Tools.
- 31 Apple iMacs.
- Projection system for video and multimedia content.
- Waves Gold Level software bundle.

B. When taught via Foothill Global Access:

- On-going access to computer with email software and capabilities.
- Email address.
- JavaScript enabled internet browsing software.

Method(s) of Evaluation

Written examinations on plugin parameters and application

Preparation and presentation of a recording edited and altered via the use of both AAX and RTAS plugins

Lab assignments targeting specific plugin techniques

In-person demonstration of plugin applications

Method(s) of Instruction

Lecture presentations that demonstrate advanced audio signal processing technologies

Classroom discussions that address the history and evolution of frequency, time, pitch, and modulation based signal processing

Group presentations followed by in-class discussion and evaluation

Representative Text(s) and Other Materials

Izhaki, Roey. [Mixing Audio: Concepts, Practices, and Tools, 3rd ed.](#) 2017.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- Written critiques and analyses of audio production projects, including albums, soundtracks, television, video games and internet multimedia.
- Written summaries documenting technical and artistic elements for corresponding submitted assignments and audio projects.
- Written proposals, session logs, learning outcomes and reflections supporting submitted musical works and final master recordings.

Discipline(s)

Commercial Music