

**MUSC 50 Course Outline as of Fall 2021****CATALOG INFORMATION**

Dept and Nbr: MUSC 50 Title: INTRO MUSIC TECHNOLOGY

Full Title: Introduction to Music Technology

Last Reviewed: 11/9/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	2.00	8	Lab Scheduled	35.00
		Contact DHR	1.00		Contact DHR	17.50
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

This introductory course examines the concepts, terminology, techniques, and equipment related to music technology. Students will receive a solid foundation in the principles of sound, MIDI, synthesis, digital recording, and computer-based music notation, as well as hands-on experience with state-of-the-art industry hardware and software. Designed for students with an interest in composition, songwriting, digital audio, and/or multimedia.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: This introductory course examines the concepts, terminology, techniques, and equipment related to music technology. Students will receive a solid foundation in the principles of sound, MIDI, synthesis, digital recording, and computer-based music notation, as well as hands-on experience with state-of-the-art industry hardware and software. Designed for students

with an interest in composition, songwriting, digital audio, and/or multimedia. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Transferable	Effective:	Fall 2009	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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### **CID:**

CID Descriptor: CMUS 100X Introduction to Music Technology

SRJC Equivalent Course(s): MUSC50

### **Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Describe and explain the fundamental concepts, terminology, techniques, and equipment related to music technology.
2. Apply a working knowledge of MIDI sequencing, digital recording, and synthesis to produce projects on a Digital Audio Workstation.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Explain the fundamentals of sound including waveforms, frequency, amplitude, phase, and harmonics.
2. Demonstrate a conceptual and understanding of and working proficiency with MIDI hardware, software, and sequencing.
3. Explain the fundamentals of synthesis techniques such as subtractive, additive, frequency modulation (FM), and wavetable.
4. Describe the theory and applications of digital sampling and recording.
5. Describe the elements and techniques of computer-based music notation.

### **Topics and Scope:**

Lecture Topics:

#### **I. Sound and Hearing**

##### **A. The basics of sound and sound waves**

##### **1. Frequency**

- 2. Amplitude
- 3. Phase and phase shift
- 4. Harmonic content (timbre)
- 5. The sound envelope (ADSR)
- B. Loudness levels: The Decibel (dB)
- C. The ear and human hearing
  - 1. Thresholds of hearing, feeling, and pain
  - 2. Taking care of your hearing
  - 3. Psycho-acoustics
- D. Auditory perception
  - 1. Beats
  - 2. Combination tones
  - 3. Masking
  - 4. Perception of direction
  - 5. Perception of space (reflection and reverberation)
- II. Introduction to the Musical Instrument Digital Interface (MIDI)
  - A. The MIDI specification
  - B. MIDI devices
  - C. MIDI channels
  - D. Signal flow
  - E. Channel and system messages
  - F. Global functions
  - G. The General MIDI (GM) specifications
- III. Introduction to Digital Sampling and Recording
  - A. Digital Audio Workstations (DAWs)
  - B. Technologies and formats
  - C. Quantization
  - D. Sample rate
  - E. Bit depth
  - F. The Nyquist theorem
  - G. Dither
- IV. Sequencing with a Digital Audio Workstation
  - A. The basics
    - 1. Starting a new project & saving
    - 2. Audio & MIDI tracks
      - a. Record/play/mute/solo
      - b. Softsynths (instruments)
  - B. Recording modes
  - C. Converting audio to MIDI
  - D. Work flow schemes: freezing & resampling
  - E. Elastic Audio: warping
  - F. Working with grooves
  - G. Effects processing
- V. Introduction to Synthesis
  - A. Analog (subtractive) synthesis
    - 1. Three elements of sound: pitch, timbre, and amplitude
    - 2. Voltage-Controlled Oscillators (VCOs): pitch
    - 3. Basic waveforms
    - 4. Filters (timbre)
    - 5. Amplifiers (amplitude)
    - 6. Modifiers
      - a. Envelopes

- b. Low Frequency Oscillator (LFO)
- B. Frequency Modulation (FM) synthesis
  - 1. Carriers
  - 2. Modulators
- C. Wavetable synthesis
- D. Controlling synth parameters within a DAW
- VI. Introduction to computer-based music notation
  - A. Computer notation basics
  - B. DAW score windows
  - C. Major platforms: Finale, Sibelius, MuseScore

#### Laboratory Topics:

- I. Beginning-level usage of a Digital Audio Workstation (DAW)
- II. MIDI sequencing, sampling, and/or other digital recording applications
- III. Basics of computer-based notation
- IV. Individual projects

#### Assignment:

- 1. Reading (10-20 pp. per week) from the text, handouts, and/or online tutorials
- 2. Weekly projects and classroom discussions
- 3. Quiz(zes) (1-3) on course topics (multiple choice/short answer/essay as needed)
- 4. Completion of required laboratory hours
- 5. Comprehensive final exam and/or final project designed in consultation with the instructor
- 6. Hands-on proficiency demonstrations

#### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Class project(s)

Problem solving  
40 - 55%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Hands-on proficiency demonstrations

Skill Demonstrations  
25 - 35%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes and exams

Exams  
10 - 25%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation, lab hours

Other Category  
5 - 10%

**Representative Textbooks and Materials:**

An Introduction to Music Technology. 3rd ed. Hosken, Dan. Routledge. 2020

Online tutorials: Groove3.com (all-access pass)

Instructor prepared materials.