

# MUS 080C: LIVE SOUND REINFORCEMENT II

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**Originator**

creba

**Justification / Rationale**

As we develop our Commercial Music program at College of the Desert, we are identifying areas of curriculum and training that should be added to our certificates, degrees, and offerings. We are currently developing a Live Production Certificate of Achievement and this course will be one of the required courses for that certificate.

**Effective Term**

Spring 2023

**Credit Status**

Credit - Degree Applicable

**Subject**

MUS - Music

**Course Number**

080C

**Full Course Title**

Live Sound Reinforcement II

**Short Title**

LIVE SOUND II

**Discipline****Disciplines List**

Commercial Music

**Modality**

Face-to-Face

Hybrid

**Catalog Description**

Live Sound Reinforcement II covers more advanced topics and techniques in live sound including hanging and tuning line array systems, advanced mixing techniques for music, theater, and corporate events, speaker time alignment, wireless microphones, and in-ear monitor systems.

**Schedule Description**

This course provides advanced training in live sound systems and operation for music, theater, and other uses.

Prerequisite: MUS 078C

**Lecture Units**

2

**Lecture Semester Hours**

36

**Lab Units**

1

**Lab Semester Hours**

54

**In-class Hours**

90

**Out-of-class Hours**

72

**Total Course Units**

3

**Total Semester Hours**

162

**Prerequisite Course(s)**

MUS 078C

**Required Text and Other Instructional Materials****Resource Type**

Instructional Materials

**Description**

Instructor handouts

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**Resource Type**

Web/Other

**Description**

Videos

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**Class Size Maximum**

20

**Entrance Skills**

Students will need to be able to properly delineate between recording and live-sound consoles.

**Requisite Course Objectives**

MUS 078C-Identify and describe the primary differences between a typical recording console and a live sound console.

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**Entrance Skills**

Students will need to be familiar with different powered, passive, line-array, front-fill, and monitor speakers used in live sound reinforcement.

**Requisite Course Objectives**

MUS 078C-Identify and describe the types of loudspeakers used in a typical PA system for music.

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**Entrance Skills**

Students will need to know the differences between dynamic, ribbon, piezo, and condenser microphones, the various polar patterns associated with microphones, and how they are typically used in various live sound scenarios.

**Requisite Course Objectives**

MUS 078C-Identify and describe microphone types and their usage in live sound.

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**Entrance Skills**

Students must have knowledge of, and demonstrate, safety protocols for the set up, tear down, and use of live sound systems.

**Requisite Course Objectives**

MUS 078C-Properly, and safely, set up and tear down a live sound reinforcement system for music.

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**Entrance Skills**

Students must show a basic understanding of acoustic phenomena related to the set up and tuning of live sound systems. This includes standing waves, resonances, reflections, properties of bass frequencies, and phase concerns.

### Requisite Course Objectives

MUS 078C-Summarize how room acoustics impact PA system operation, including how to adjust (tune) a PA system to a specific venue.

### Entrance Skills

Students must have knowledge of, and show, proper lifting techniques for moving heavy equipment, organizing and securing of loose cables and power lines, properly powering stage components, and use of safety equipment such as gloves, protective eyewear, and head protection where applicable.

### Requisite Course Objectives

MUS 078C-Learn and adopt safety standards for PA system setup and operation.

### Course Content

1. Advanced mixing techniques
2. Advanced signal processing
3. Digital synchronization
4. Wireless systems (Microphones and In-Ear Monitors)
5. Advanced mixer topology and programming
6. Matrix mixing
7. Speaker delay and time alignment
8. Line array speaker systems
9. Mixing for in-ear monitors
10. Sound for live theater
11. Corporate sound
12. Power
13. Safety procedures and protocols
14. Organization and Planning

### Lab Content

Lab time will be used to explore practical use and application of concepts discussed during the lecture portions of the course. Students will practice, in real world scenarios, advanced use of digital effects, EQ, and dynamics processors, synchronization of multiple digital devices in a system, properly setting up and using wireless microphones and in-ear monitor systems, assembling, tuning, and operating various types of speaker setups, using mix matrices for various types of setups, and practicing appropriate safety standards throughout.

### Course Objectives

	Objectives
Objective 1	Implement proper safety procedures while setting up a variety of Live Sound Reinforcement Equipment, cabling, and while operating equipment.
Objective 2	Compare the typical point source and line array speaker systems in terms of their uses, setup, functionality, operating behavior, efficiency, and cost.
Objective 3	Integrate matrix mixing into more advanced PA and speaker setups.
Objective 4	Measure the path length difference between various speakers, or speaker groups, in a system and properly calculate and apply speaker delay to time align all speakers in a system.
Objective 5	Categorize and describe the different types of wireless microphone and in-ear monitor systems in terms of their typical use, operation, and challenges in the modern wireless landscape.
Objective 6	Display advanced mixing techniques utilizing EQ, dynamics processors, digital signal processing, DCA groups, and scenes or presets.
Objective 7	Explain digital synchronization of digital audio equipment and various protocols utilized in professional audio.

### Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Devise strategies for successful design and operation of various sound systems, in multiple scenarios, including stage plots, input lists, component/equipment selection, speaker placement, acoustic considerations and power considerations among others.

- Outcome 2 Display the ability to set up and operate a live sound system for various uses (music, theater, corporate) utilizing advanced mixing techniques, appropriate speaker tuning and time alignment when needed, digital connection and synchronization of various equipments, and demonstrating organized mixer workflows.
- Outcome 3 Properly implement the use of various wireless systems into typical PA setups for music, theater, and corporate events.

### Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Demonstration, Repetition/Practice	Various activities and techniques will be demonstrated to students and they will have to then replicate those activities and techniques in class.
Lecture	Lectures will be used to cover theoretical concepts and material.
Technology-based instruction	The majority of instruction in this course will consist of teaching specific technology related to Live Sound Reinforcement. Students will learn about the theory, use, applications, and functionality of many pieces of specific technology used in this area.

### Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Critiques	Students and faculty will frequently engage in group critique of subjective elements of sound, and students will regularly engage in peer performance critiques.	In Class Only
Laboratory projects	Students will be provided tasks and projects throughout the semester which they will complete individually or in a group during the lab component of the course.	In Class Only
Oral and practical examination	Students will individually be given skills practicums throughout the semester by the instructor. Core competencies will be assessed in this manner. Students will likely spend an average of 1-2 hours per week outside of class preparing for these practicums.	In and Out of Class
Self/peer assessment and portfolio evaluation	Students will engage in periodic self assessments about 4 times during the semester/course duration in which they will be required to reflect on their learning and understanding as it pertains to the course. this will allow students to track and see their progress over the duration of the course.	Out of Class Only
Written homework	Students will be assigned reading and various written assignments over the term of the course.	Out of Class Only

### Assignments

#### Grade Methods

Letter Grade Only

### Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

30

On-campus %

70

## Instructional Materials and Resources

**If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?**

We will only be using technology specifically related to Live Sound Reinforcement, and student data will not be a factor in the usage of any of that technology.

## Effective Student/Faculty Contact

**Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?**

### Within Course Management System:

Chat room/instant messaging  
Discussion forums with substantive instructor participation  
Private messages  
Regular virtual office hours  
Weekly announcements

### External to Course Management System:

Direct e-mail

### For hybrid courses:

Field trips

**Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.**

This course will not be offered in a 100% online format, so there will always be at least one meeting per week in-person. Regular announcements and communications will also be utilized via canvas. Regular office hours will also be held by instructors teaching this course.

## Other Information

**Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.**

The online portion of this course in any hybrid modality will only be used to provide lecture materials, readings, and activities solely related to theoretical concepts in the course. All other material will need to be presented in-person in a lab setting.

## MIS Course Data

### CIP Code

10.0203 - Recording Arts Technology/Technician.

### TOP Code

100500 - Commercial Music

### SAM Code

C - Clearly Occupational

### Basic Skills Status

Not Basic Skills

### Prior College Level

Not applicable

### Cooperative Work Experience

Not a Coop Course

### Course Classification Status

Credit Course

### Approved Special Class

Not special class

**Noncredit Category**

Not Applicable, Credit Course

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Transferable to CSU only

**General Education Status**

Y = Not applicable

**Support Course Status**

N = Course is not a support course

**Allow Audit**

No

**Repeatability**

No

**Materials Fee**

No

**Additional Fees?**

No

**Files Uploaded****Attach relevant documents (example: Advisory Committee or Department Minutes)**

Commercial\_Music\_2021.pdf

**Approvals****Curriculum Committee Approval Date**

04/21/2022

**Academic Senate Approval Date**

04/28/2022

**Board of Trustees Approval Date**

06/16/2022

**Chancellor's Office Approval Date**

06/18/2022

**Course Control Number**

CCC000632414