MUSC 51A Course Outline as of Fall 2009

CATALOG INFORMATION

Dept and Nbr: MUSC 51A   Title: DIGITAL AUDIO-FUNDAMNTLS
Full Title: Digital Audio: Fundamentals
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	17.5	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 course covers the fundamentals of digital audio including a hands-on workshop in production and editing with a digital audio workstation (DAW). Topics include mixing techniques, use of plug-ins, the integration of MIDI and live audio tracks, and preparation for final mixdown.

Prerequisites/Corequisites:

Recommended Preparation:
Course Completion or Concurrent Enrollment in MUSC 50 OR Other

Limits on Enrollment:

Schedule of Classes Information:
Description: This course covers the fundamentals of digital audio including a hands-on workshop in production and editing with a digital audio workstation (DAW). Topics include mixing techniques, use of plug-ins, the integration of MIDI and live audio tracks, and preparation for final mixdown. (Grade Only)
Prerequisites/Corequisites:

Recommended: Course Completion or Concurrent Enrollment in MUSC 50 OR Other
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 2009	Inactive:	
UC Transfer:		Effective:	Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon completion of this course, students will be able to:
1. Explain the theoretical basis of digital audio and trace its historical development.
2. Utilize and apply a working vocabulary of digital audio terminology.
3. Explain and apply the fundamentals of digital recording including sampling, dither, aliasing, and error correction.
4. Explain and utilize the various types of computer audio hardware and software including sound cards, interfaces, storage media, interconnections, and file formats.
5. Demonstrate hands-on proficiency with a DAW at an intermediate level.
6. Mix and edit live audio tracks, including integration with MIDI.
7. Assess the current state of technology in the digital audio industry.

Topics and Scope:

Lecture Topics:
I. Sound and Numbers
    A. The physics of sound
    B. Number systems: decimal, hex, binary
    C. Binary codes: weighted and unweighted
    D. Two's complement
    E. Analog vs. digital
II. Fundamentals of Digital Audio
    A. Discrete time sampling
    B. The Nyquist theorem
    C. Preventing aliasing
    D. Quantization
        1. Signal-to-error ratio
        2. Quantization distortion

   A. Professional audio interfaces
   B. S/PDIF consumer interconnection
   C. Serial Copy Management System (SCMS)
   D. Audio Engineering Society (AES) protocols
   E. Fiber-optic interconnections

Laboratory Topics:
I. Intermediate-Level Usage of the Digital Audio Workstation
   A. Mark of the Unicorn (MOTU) Performer
   B. Propellerhead Reason
II. Integration of MIDI and Live Audio Tracks
III. Mixing and Editing Techniques

Assignment:

1. Reading (10-20 pp. per week) from the text and handouts.
2. Hands-on proficiency demonstrations (3-5) on the hardware and software.
3. Quizzes (3-5) on vocabulary and technical terminology.
4. Completion of required laboratory hours.
5. Final project: an original recording or composition (minimum of 3 minutes in length) that demonstrates mastery of the concepts of the course.

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.

Audio 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.

Terminology quizzes	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:
Principles of Digital Audio, 5th ed. Pohlmann, Ken C. McGraw Hill/TAB Electronics, 2005.
Audio in Media, 8th ed. Alten, Stanley R. Wadsworth, 2007.
Instructor prepared materials.