ROSE STATE COLLEGE

Division Course Syllabus

Division: Humanities
Course Prefix and Number: MUS 2323
Course Title: Audio Engineering I
Semester and Year Submitted: Spring 2016
Credit Hours: 3
Prepared by: Dr. David Gedosh

Hours Per Week:
Class: 3
Lab: 0

Course Description (as it appears in Catalog):
This course is an introductory course designed for students who wish to gain an understanding of the technical and artistic principles of audio production using current technology in both studio and live environments. This course focuses on the physical properties of sound, microphone design and applications, introductory microphone techniques, with an emphasis on studio equipment and signal routing and pathway. This course is taught in the recording studio using Pro Tools HDX software.

Prerequisites:
None

Text(s):
Title: Modern Recording Techniques 8th edition
Author: David Miles Huber, Robert E. Runstein
Publisher: Focal Press
Copyright Date: 2013
ISBN #: 978-0240821573
Reading Level: Intermediate

Supplemental Materials:
(Other books, audio visual aids, etc.)
Required: External HDD or Flash Drive (max GB), Headphones with 3.5mm connector and 1/4 inch adapter.
Outline for Remainder of Syllabus:

Rationale: Given the complexities and variance of audio production in its real-world use, this course covers in-depth the fundamental aspects of audio production shared by most of the common production environments. This course will give students a solid background on which to build knowledge and skills, and continue on with the remaining courses in the music engineering program. As an introductory level, fundamental course, this course focuses on the basic physical properties of sound, microphone design and applications, introductory microphone techniques, and signal routing using analog equipment as well as Pro Tools HDX. Along with this information students will start to build a knowledge base of the different components of recording systems, their use, and their interconnectivity. Due to the focus of this course students should also enroll in MUS 2312 Computers and Music 1 during the same semester, which is dedicated to music production techniques using software and digital audio workstations exclusively. The physical properties of sound section is introductory in nature, and students should enroll in PHYS 1253 Musical Acoustics and Sound during their freshman year.

Expected Outcomes: Upon completion of this course students should be able to:

1) Demonstrate a basic knowledge of the physical properties of sound
2) Demonstrate a basic knowledge of human perception and hearing
3) Demonstrate a fundamental understanding of signal flow and signal routing as it pertains to live and studio music production
4) Demonstrate a functional proficiency in the design of microphones, their applications, and microphone techniques for use in professional live and studio music production environments
5) Demonstrate a fundamental understanding of common music production equipment, its use, and interconnectivity in the studio environment
6) Demonstrate basic proficiency in the proper use and care of common studio analog equipment, current digital audio workstation (DAW) music production hardware and software - Pro Tools HDX system.
7) Develop skills for critical listening and analysis of music production techniques
8) Effectively communicate their knowledge of the artistic and technical elements of music production
9) Begin to develop a portfolio of creative work

Methods of Instruction: This course is largely practical, with hands-on demonstrations, exercises, and practical projects, supported by technical discussion of theoretical information. The following methods of instruction are to be used:

Reading assignments from text
Reading assignments and quizzes from handouts - distributed online through D2L
Online videos and articles pertaining to specific topics
Class lectures and discussion
Class demonstration and practical exercises
Written quizzes
Software-based practical assignments

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Practical projects

Assessment (Including Critical Thinking measurements):
Assesment of students' understanding is varied across written quizzes and tests, practical in-class exercises, practical software assignments, and practical projects, as well as class participation and the ability to clearly articulate the technical and artistic elements of the course material.

<table>
<thead>
<tr>
<th>Reading Assignment Quizzes</th>
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<tbody>
<tr>
<td>Written in-class Quizzes</td>
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<td>Practical in-class assignments</td>
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<td>Practical Lab Assignments</td>
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<td>Final</td>
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<tr>
<td>Attendance / Class Participation</td>
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Students' work will receive a numerical grade in the form of points received out of total points possible. The final grade will be calculated by converting the total points received into a percentage as follows:

A=100-90, B=89.9-80, C=79.9-70, D=69.9-60, F=59.9-0

Learning Objectives: The following section defines the major units of the course along with learning objectives for that section. Supplemental materials, including media files, reading assignments and quizzes, and tests can be found in the supplemental materials folder accompanying this course syllabus.

Unit I  Introduction to the Physical Properties of Sound, and Human Hearing (Outcomes 1, 2, 8)

On written quizzes and exams, the student will be expected to demonstrate the following:

1. The fundamental physical properties including; what is sound? wave propogation, waveform characterisitics, viewing technical data and scientific notation.
2. Human hearing and perception, including the mechanics of the human ear, characteristics of human hearing in terms of ranges of frequency and amplitude

Unit II  Microphone Design and Application (Outcomes 4, 5, 7, 8)

On written quizzes and exams, the student will be expected to demonstrate the following

1. The general pricinciples of microphone design for dynamic, condensor, and ribbon microphones
2. Identification of, qualitative aspects of, and common uses of common microphone types and models

Unit III  This unit in concurrent with unit IV.  Introduction to microphone techniques (Outcomes 3, 4, 6, 8)
Through practical demonstrations, the students will be able to demonstrate the following:

1. Proper use and care of microphones
2. Proper cable wrapping techniques
3. Proper use of mic stands and setting up microphones for use in the studio
4. Differentiate and choose between different microphone types and models for given instruments
5. Proper single and multi-mic'ing techniques on a variety of single-source instruments; e.g. acoustic instruments, vocals, guitar and bass amplifiers

Unit IV  Signal Routing and Signal Flow (Outcomes 3, 4, 5, 7, 8, 9)

Through practical demonstrations, exercises, and assignments the students will be able to demonstrate the following:

1. Setting up recording sessions in Pro Tool HD
2. Typical signal routing in the recording studio for a variety of recording situations
3. Using the patchbay to connect a variety of analog equipment for different situations
4. The proper procedures and techniques for setting up equipment and microphones for a variety of instruments
5. The use of inserts and auxiliary tracks in Pro Tools
6. Setting up cue mixes using auxiliary tracks in Pro Tools HDX environment and the cue mix system
7. A general knowledge of the equipment in the recording studio
8. Pass the recording studio certification test