

MUSC 2447 Audio Engineering III Syllabus Addendum
McLennan Community College, Waco, TX

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WHAT IS THIS COURSE?

AUDIO ENGINEERING III is a third semester Audio Technology course in which sophomore audio students are able to continue their study of recording skills. This course consists of lecture sessions, accompanied by MUSC 2286, a practicum laboratory in which students can integrate the materials and equipment covered by the lecture. This Syllabus Addendum contains the details of how this class will be conducted, the competency assignments, and the other necessary information needed to successfully complete this class.

Be sure to visit the student link at <http://www.ranchstudio.com> regularly to access updated information and other helpful audio resources.

The text book is *ELECTRONIC PROJECTS FOR MUSICIANS*, by Craig Anderton.
Periodical reading and reports will be from *Studio Sound magazine, EQ magazine, Electronic Musician Magazine*.

Each student will be required to assemble an electronic tool kit for use in this course.

ATTENDANCE POLICY:

Because of the technical nature of this course, tardiness or missed classes will seriously jeopardize your chances of success. If you experience a true emergency and must miss a class, contact the fine arts office. Your attendance will affect your grade as follows:

3 tardy = 1 absence

Accumulated absences will result in a proportional lowering of the student's grade.

25% absence will result in the student being dropped and/or failed, see the MCC official Attendance Policy.

GRADING POLICY:

A student's grade will be the cumulative total of the following criteria:

- 50% Performance on the objectives.
- 30% Attendance, professional attitude and conduct, evaluated by instructor's observation.
- 20% Construction of audio device, Completion of live performance reviews, and Quality of Recording Projects, evaluated by the instructor.

The grading scale used in this class is:

A=90-100%

B=80-89%

C=70-79%

D=60-69%

F=BELOW 60%

OFFICE HOURS:

I will be glad to help you outside of class time. I have regular office hours posted. Many times I am meeting with someone else in the studio or elsewhere during these hours, so be sure to make an appointment with me.

Check in at <http://www.ranchstudio.com/MccStudents.htm> regularly to have access to all of the forms, syllabi, and other helpful audio information.

COMPETENCY and OBJECTIVES

The following **competencies** outline the purposes of this course. The **objectives** are the specific activities that we will carry out.

Competency 1 Demonstrate the mastery of the fundamentals relating to electronic theory and circuits.

Objective: Define current, voltage, ground, resistance, capacitance, ohms, alternating and direct current.

Objective: Describe the operational characteristics of electronic components used in audio circuitry; resistors, potentiometers, capacitors, semiconductors, diodes, transistors, integrated circuits, wire, switches, hardware.

Objective: Read schematic diagrams and identify components from a schematic and by physical observation.

Source: Class lecture \ lab, and Text chapter 1

Evaluation: Quiz; 80% mastery required

Competency 2 Assemble an electronic tool kit.

Objective: Identify and purchase the equipment and tools needed to build and repair electronic circuits; Volt Ohm-Milliammeter, pliers, cutters, strippers, screwdrivers, soldering equipment, holding devices.

Source: Class lecture \ lab, and Text chapter 3

Evaluation: Purchase and Assemble tool kit; 100% mastery required

Competency 3 Develop the basic skills to trouble shoot, build and repair electronic equipment.

Objective: Use a Volt Ohm-Milliammeter to read voltages, open circuits, short circuits, and test cables.

Objective: Perform soldering of cables and circuit components.

Objective: Analyze a sine wave using an Oscilloscope.

Objective: Select an electronic circuit to construct.

Objective: Build an audio device.

Source:Class lecture \ lab, and Text chapter 4, 5, 19

Evaluation: Quiz; 100% mastery required

Competency 4 Develop the necessary skills to do live 2 track recording.

Objective: Select the equipment needed to do live two track recording.

Objective: List the equipment needed to do live two track recording.

Objective: Explain the parameters dictating microphone and equipment placement.

Objective: Perform live 2 track recordings.

Source:Class lecture \ lab, and handouts

Evaluation: Performance of live 2 track recordings, 100% mastery required

Competency 5 Explain the fundamentals of interconnecting audio equipment.

Objective: Explain balancing, unbalanced, level matching.

Objective: Compare and contrast different grounding techniques.

Objective: Identify and Isolate the sources of hum and noise in an audio system.

Source:Class lecture \ lab

Evaluation: Quiz; 80% mastery required

Competency 6 Demonstrate the ability to engineer audio recording sessions.

Objective: Allocate and follow through with time budgets.

Objective: Perform efficient studio planning and setup\teardown.

Objective: Identify and Contrast microphone\input quality with desired sound.

Objective: Analyze signal flow problems, and respond effectively.

Objective: Operate console and patchbay functions; Set optimum levels throughout signal chain, and on the recorded medium.

Objective: Apply principles of diplomacy, maintain professional work ethics and relationships while in session.

Source:Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 80% mastery required

Competency 7 Explain the fundamentals of MIDI operations in the control room.

Objective: Explain audio triggering for midi devices, and midi control of audio devices.

Objective: Allocate audio outputs from midi voice modules to console.

Objective: Contrast the options of different midi controller input devices.

Objective: Explain the principles for SMPTE lockups between midi\audio systems.

Source:Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 80% mastery required

Competency 8 Develop the necessary skills to Program midi devices.

- Objective: Define master settings editing, channel editing, voice editing, system exclusive dumps, polyphony.
- Objective: Perform programming of modules and voices (pan, level, channel, audio outputs, primary and secondary voice manipulation, sysex dump-restore).

Source: Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 80% mastery required

Competency 9 Develop the necessary skills for Computer sequencing.

- Objective: Define computer\sequencer terminology (from handout).
- Objective: Explain input ports, output ports, channel allocation, midi interface, for computer sequencing.
- Objective: List the hardware and software equipment necessary for computer sequencing.
- Objective: Perform midi computer sequencing, editing, midi volume changes, patch changes, pan changes, system exclusive dumps.
- Objective: Perform midi and SMPTE synchronization of a sequencer to audio recorders.

Source: Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 80% mastery required

Competency 10 Demonstrate the fundamental operations of hard disk recording.

- Objective: Explain the signal flow of a hard disk recorder's hardware and software components.
- Objective: Perform boot-up, setup, patching, recording, and saving operations on the hard disk recorder.
- Objective: Synchronize hard disk recorder with analog recorder and midi sequencer.
- Objective: Allocate segments to proper library structures, and manage library functions.
- Objective: Perform archive and backup operations.

Source: Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 100% mastery required

Competency 11 Develop the necessary skills to perform digital audio editing.

- Objective: Perform non-destructive cut and paste, delete, move segments, time shift, trim, copy, grab and place edits; destructive normalization, gain, fade editing.
- Objective: Compile and edit a master sequence of songs.
- Objective: Explain the use of the digital EQ.
- Objective: Perform virtual mixing, track bouncing, automated levels, punch ins.
- Objective: Program and use midi input device for virtual mixer control.

Source: Class lecture \ lab, and hand outs

Evaluation: Quiz, Demonstration of skills; 100% mastery required

Competency 12 Review information from audio trade periodicals.

Objective: Summarize procedures, trends, or technical information presented in articles from trade publications.

Source: *Audio trade periodicals (Mix magazine, EQ magazine, Electronic Musician Magazine)*

Evaluation: *Monthly report due; 80% mastery required, must be typed and grammatically correct.*

Competency 13 Develop audio critical listening skills.

Objective: Analyze recordings of student's choice, identifying techniques, procedures, sound sources, instrumentation.

Source: *Student provided commercial recordings.*

Evaluation: *Monthly oral report due; 80% mastery required*

Competency 14 Demonstrate professional conduct.

Objective: Demonstrate regular attendance, promptness, adequate preparation, willingness to volunteer, the ability to deal with difficulties, work with groups, and deal with adversity.

Source: *Student meeting times and projects.*

Evaluation: *Instructor observation*

Competency 15 Develop music business networking skills and co-lateral relationships.

Objective: Practice regular attendance to other artist's live performances, and share your experiences with other music business people. Each student is required to attend and review at least five live performances of MCC students/faculty each semester. You must hand in at least five written reviews of the concerts or performances that you attend. Details are at <http://www.ranchstudio.com/MccStudents.htm>

Source: *Attending 5 on campus live performances.*

Evaluation: *5 Reviews handed in to instructor; 80% mastery required*

Students in the McLennan Community College Music Industry Careers Audio Technology Program are learning to operate Digital Audio Work stations (DAW's), as well as analog devices. They are required to do the majority of their out-of-class work and projects on a DAW capable computer. In order to complete their assignments, they must have access to a DAW capable computer outside of the classroom. The need for a personal computer is required in order to complete the assignments. It is recommended that the DAW audio computer should be dedicated to the audio recording function, and not used for other non-audio tasks, in order to maximize operation reliability and speed.