# Course Syllabus

## MUSC 2459 (4:3:4)

## Sound System Optimization

## Live Sound/Sound Reinforcement Certificate

## Sound Technology Program

## Technical Education Division

## Levelland Campus

## South Plains College

## Creative Arts Department - South Plains College - Levelland Campus

## Course Syllabus

***Course Title:*** ***MUSC 2459 Sound System Optimization (4:3:4)***

***Instructor:*** ***Matt Quick***

***Office:*** ***CB 138 - Telephone: (806) 894-9611, ext. 2472 – voice-mail configured. E-mail: mquick@southplainscollege.edu***

***Office Hours:*** ***As posted on instructor's door***

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## I. *General Course Information:*

A. Description: System optimization. Includes related acoustic principles and system alignment procedures. Emphasizes system equalization, time/phase alignment, subsystem integration, loudspeaker management systems, ear training, and industry-standard acoustic analysis software.

B. End of Course Outcomes: Analyze audio systems using industry-standard tools; explain the variables affecting the alignment and behavior of sound systems; demonstrate optimization of audio systems performance using data acquired from system analysis; and describe techniques to verify individual sound system components and systems performance.

C. Course Competencies: Upon completion of this course, each student will have demonstrated through comprehensive examinations, with a score of 60% or better, a competent understanding of sound system verification, alignment, and optimization.

D. Academic Integrity: It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. Students should refer to the SPC General Catalog, pg.22-23, regarding consequences for cheating and plagiarism (see "Academic Integrity" as well as "Student Conduct" sections).

E. SCANS: This course is designed to meet the following SCANS and Foundation skills criteria: C3, C5, C6, C7, C8, C10, C13, C16, C17, C18, C19, F2, F5, F6, F9, F11, F15, and F16. A complete list of SCANS Competencies and Foundation Skills are located on the last page of the syllabus.

F. Verification: This course is a building block for the student to move towards a capstone experience.

## II. *Specific Course/Instructor Requirements:*

A. Textbook and Other Materials: Sound Systems: Design and Optimization 2nd Edition by Bob McCarthy, handouts, and other resources will be provided by instructor as needed. One 4GB Flash Drive.

B. Attendance Policy: Punctual and regular attendance is required of all students. Missing four consecutive classes or having a total of five absences *may* result in an instructor-initiated withdrawal. Students are responsible for all missed material. If a student is absent on a day that a test is given (testing of competencies included), **he or she will not be allowed to make up the test unless arrangements are made prior to the test day.** Any student not present at roll taking will be counted absent unless prior arrangements have been made.

C. Assignment Policy: Projects and reading assignments will be announced at least one class meeting prior to responsibility for material.

D. Grading Policy/Procedure: The student's final grade will be made up of a weighted average of at least one written test (20%), daily quiz average (10%), lab assignments (20%) and course competencies (50%). A list of the required course competencies will be attached to this syllabus. Each competency is worth 10 points; however a student must achieve at least 7 out of the 10 points in every competency to complete the competency requirement. Non completion of the competencies equals a 0% for the competency portion of the student's grade. Grading format: A= 90-100%, B= 80-89%, C= 70-79%, D= 60-69%, F= 0-59%

E. Special Requirements: MUSC 1400 is a prerequisite/co requisite. Students will be responsible for arranged lab activities throughout the semester.

## III. *Course Outline:*

*Topic Outline:*

Sound system optimization introduction
Goals, obstacles, and transmission in sound system optimization
Summation
Reception and ear training for system optimization
Test
System examination/verification and tools
FFT fundamentals
In depth look at Phase
Sound system alignment procedures
Test
Sound system optimization practice
Hands on test
Final

***Instructor reserves the right to modify this at anytime.***

## IV. *Accommodations*

***Diversity Statement*** In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

***Disability Statement*** Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. For more information, call or visit the Special Services Office in the Student Services building, 894-9611 ext. 2529.

## Competency Descriptions for MUSC 2459

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| **1** | Communicate the goals of sound system optimization |
| **2** | Communicate the obstacles of sound system optimization |
| **3** | Communicate the basic techniques of sound system optimization |
| **4** | Thorough understanding of summation including comb filtering and its causes |
| **5** | Understanding of spectral and spatial acoustic crossover concepts |
| **6** | Understanding of the system examination/verification process |
| **7** | Successful interfacing of measurement system and sound system |
| **8** | Ability to perform/interpret spectrum analysis measurements |
| **9** | Ability to perform/interpret impulse response measurements |
| **10** | Ability to perform/interpret transfer function measurements |
| **11** | Ability to read and interpret phase plot |
| **12** | Understanding of measurement microphone placement strategies |
| **13** | Ability to use all of the above measurements/concepts to optimize the frequency response and phase response of a bi-amplified loudspeaker system |
| **14** | Ability to use all of the above measurements/concepts to phase align a sub-system with a main system |
| **15** | Communicate the roles and responsibilities of a professional systems engineer/optimizer |
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| | **15 Competencies** |