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

Fall 2023/Spring 2024

Creative Arts Department - South Plains College - Levelland Campus

Course Syllabus

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

Instructor: ***Matt Quick***

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

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I. *General Course Information:*

MUSC 2459 Sound System Optimization will be taught as a Flex course. We will be meeting face to face for lecture/lab time. This will be supplemented with several online learning tools including lecture notes, and video demonstrations.

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 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, 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 3rd Edition by Bob McCarthy, handouts, and other resources will be provided by instructor as needed.

B. Attendance Policy: Punctual and regular attendance is expected of all students. Students are responsible for all missed material. If a student is absent on a day that an assignment/assessment is given, **the student will not be allowed to make up the assignment/assessment unless the absence is an excused absence.** Passwords for the assignment/assessments will not be given if the absence is unexcused. For an absence to qualify as excused the student must contact the instructor via email prior to the class meeting and provide their reason for not attending. Based on the reason given by the student, the instructor will determine if the absence qualifies as excused or unexcused. Any student not present at roll taking will be given an unexcused absence unless the student has provided prior notification. Tardiness and unexcused absences will result in a 0 for the daily attendance grade. Attendance will be taken at the beginning of class.

C. Assignment/Assessment Policy: Assignments/assessments will be announced during class. Students will be given a password to access the assignment/assessment via Blackboard. Due dates will be provided.

D. Grading Policy/Procedure: The student's final grade will be made up of a weighted average of at least one written test (20%), quiz average (10%), lab assignments (10%), daily attendance (20%) and course competencies (40%). 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 any time.

IV. *Accommodations*

https://www.southplainscollege.edu/syllabusstatements/

Competency Descriptions for MUSC 2459

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 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 impulse response measurements
9	Ability to perform/interpret transfer function measurements
10	Ability to read and interpret phase plot
11	Understanding of measurement microphone placement strategies
12	Ability to use all of the above measurements/concepts to optimize the frequency response and phase response of a multi-way loudspeaker system
13	Ability to use all of the above measurements/concepts to phase align a fill-system with a main system
14	Communicate the roles and responsibilities of a professional systems engineer