

**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**

**Spring 2022**

**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 recordings, 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 3<sup>rd</sup> 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 (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 any time.***

#### **IV. Accommodations**

**SPC Standard Disability Statement:** Any students who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make and necessary arrangements. Students must present appropriate verification from the SPC Disability Service Office during the instructor's office hours. Please note that instructors are not allowed to provide classroom accommodations until appropriate verification from the SPC Disability Service Office has been provided. For more information, you may contact the Disability Services Office (located in the Health & Wellness Center) at 806-716-2529 or visit <http://www.southplainscollege.edu/health/disabilityservices.php>.

**Equal Opportunity, Harassment, and Non-Discrimination Statement:** South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360. South Plains College is dedicated to providing a safe and equitable learning environment for all students. Discrimination, sexual assault, and harassment are not tolerated by the college. The Health and Wellness Center offers confidential support (806-716-2529) and Voice of Hope has a 24-hour hotline: 806-763-7273. You are encouraged to report any incidents online at <http://www.southplainscollege.edu/about/campussafety/complaints.php>.

**Pregnancy Accommodation Statement:** If you are pregnant, or have given birth been within six months, under Title IX you have a right to reasonable accommodations to help continue your education. Students who wish to request accommodations must contact the Health and Wellness Center at 806-716-2529 to initiate the process

#### **Covid Statement**

Consistent with the latest CDC recommendations, we have revised our guidance for students, faculty, and staff who have a known exposure or have tested positive. Anyone with a known exposure should wear a mask for 10 days and should seek a COVID-19 test on day five after exposure. If you test positive or develop symptoms, you should immediately self-isolate and seek a COVID-19 test. Please immediately notify your instructor, supervisor, and DeEtte Edens, Associate Director of Health and Wellness, any time you test positive for COVID-19. Anyone who tests positive is required to self-isolate for five days. Following the five-day isolation period, if you are asymptomatic or your symptoms are resolving, you may return to work or class but should wear a mask for five additional days. If you are still symptomatic, please contact DeEtte Edens at [dedens@southplainscollege.edu](mailto:dedens@southplainscollege.edu) or 806-716-2376 prior to your return date.

### Competency Descriptions for MUSC 2459

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