

Student Learning Outcomes (from Course Outline)

1. The student will demonstrate an understanding of the historical development of acoustics and audio, the methodology of its measurement, and its scope and relation to other disciplines.
2. The student will demonstrate a basic knowledge of the fundamental nature of acoustics and human hearing, including an understanding of basic audio testing and audio electronics.
3. The student will use algebraic and graphical techniques to solve basic problems involving acoustics and audio.
4. The student will demonstrate skills in the application of audio test equipment and experimental techniques through the laboratory via individual and/or group exercises and demonstrations, to observe, measure, document, and evaluate acoustical and audio phenomena.
5. The student will effectively gather experimental data via the laboratory exercises, analyze data using mathematical techniques explored in the lecture, and communicate their conclusions via presentations and/or written reports.
6. The student will demonstrate the ability to work effectively as part of a team in the laboratory, to investigate, document, and analyze natural phenomena in the area of acoustics and audio.
7. The student will demonstrate an understanding of the application of basic audio and acoustic principles in everyday life, including the areas of music, speech, and the variance of human hearing across populations.

Measurement:

For items 1, 2, 3 and 7, the student's grades on in-class tests and/or the final exam will be used with regard to audio and acoustics problems. Problems will be taken from representative areas addressed in the course outline. A passing grade will be considered minimum acceptable performance.

For items 4 through 6, the student will be given at least one assignment in the laboratory that will involve the construction and test of audio and/or acoustic systems, with use of audio laboratory equipment such as microphones and oscilloscopes. The student is expected to build the system from an existing schematic and record appropriate data reflecting circuit operation and performance (item 4). The student will be observed during the laboratory with regard to performance as part of a technical team, namely, their work with a partner while performing the lab exercise (item 6). Grading will be on

an acceptable/unacceptable basis. Acceptable performance indicators include: Sharing the responsibilities of obtaining components, building test systems, obtaining proper readings from test equipment and performing theoretical analyses of the circuits under test. Further, efficient communication between the lab partners is expected as is professional courtesy and conduct. The student will also present a written technical report detailing the objectives, analysis and conclusions of this exercise (item 5). Construction and measurement will be observed by the instructor during the laboratory and verified as part of the data section of the accompanying technical report. Examples of technical report grading include:

Grade of A: The report meets or exceeds the assignment particulars. The report is neat and professional in appearance, including proper spelling and syntax. The analysis is at the appropriate level and of sufficient detail. Data tables and graphical data are presented in a clear and concise manner. Problem solutions are sufficiently detailed and correct. Diagrams have a professional appearance.

Grade of B: The report is close to the ideal although it suffers from some minor drawbacks which may include some spelling or grammatical errors, analyses which may lack sufficient detail, minor omissions in tabular or graphical data, and the like. In general, the report is solid but could use refinement or tightening.

Grade of C: The report is serviceable and conveys the major ideas, although it may be vague in spots. Spelling and grammatical errors may be more numerous than those found in a grade A or B report. Some gaps in data or omissions in explanations may be seen.

Grade of D: Besides typical grammatical errors, the report suffers from logical errors such as conclusions which are not supported by laboratory data. Analyses tend to be vague and possibly misleading. Graphs and diagrams are drawn in an unclear manner.

Grade of F: The report exhibits many of the following deficiencies: Excessive spelling and grammatical errors, missing sections such as graphs, tables, and analyses, blatantly incorrect analyses, wayward or incomprehensible data, problem solutions tend to be incorrect or missing, and graphical data or diagrams are presented in a shoddy manner.

Note that a report may receive a reduced grade for being turned in after the due date. It is felt that meeting time requirements is a valid aspect of report assessment.