Module Descriptor

Title	Sound System Design		
Session	2026/27	**Status**	Published
Code	COMP08102	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Derek Turner		

Summary of Module

The theoretical basis of sound summation which leads to the generation of patterns of sound pressure levels across audience areas will be discussed and patterns from standard speaker configurations will be presented.

The operation of a line array will be investigated and the effect of array size, curvature, graded delays, and level offsets to elements on the distribution of sound pressure level within an audience area will be considered.

The application of design software from various manufacturers to the selection and placement of speakers within a specified venue will be discussed and implemented. The transfer of the design data into systems for live performance will be noted.

The purpose of the module is to introduce students to the professional practices applied to the design of sound system installations for music venues and outdoor concerts.

- This module embeds the key "I am UWS" graduate attributes and in particular: Universal(analytical: able to identify appropriate hardware use in a scenario), Work Ready(problem-solver: able to apply software to solve design problems) and Successful (creative: working creatively with resources to produce an optimised solution)

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate a knowledge of the scope, defining features, and main areas to the specification of sound (reinforcement) system components and electroacoustic device parameters.
L2	Apply knowledge, skills and understanding in using a few techniques and practices that are specialised and advanced to the computer simulation of sound (reinforcement) systems design.
L3	Use a range of approaches to formulate and critically evaluate evidence-based solutions to routine problems and issues found in sound propagation and sound (reinforcement) system design.
L4	Use and evaluate numerical and graphical data and convey complex information to a range of audiences and for a range of purposes.
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 8** Have an awareness of current technologies used in the design of sound reinforcement systems
Practice: Applied Knowledge and Understanding	**SCQF 8** Apply the principles of acoustics to the design of sound systems using software tools.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Generic Cognitive skills	**SCQF 8** Develop an engineering mind-set regarding the distribution of sound in a venue.
Communication, ICT and Numeracy Skills	**SCQF 8** Manage computer files and data with a professional approach to maintaining backup versions
Autonomy, Accountability and Working with Others	**SCQF 8** Exercise autonomy and initiative in some activities at a professional level Manage resources within defined areas of work Take continuing account of own and others' roles, responsibilities, and contributions in carrying out and evaluating tasks

Prerequisites	**Module Code** COMP07052	**Module Title** Sound Reinforcement Systems
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. This module develops knowledge and practice through synchronous presentations and demonstrations of audio system design software. Students will be able to use pre-installed design software available in a well-equipped computer lab. Some of this will require the set-up of free personal accounts with manufacturers. Students will work towards a realistic assessment where they will design a sound system for a scenario and construct a report showing design decisions and detailed outcome. Students' interaction with industry representatives will be encouraged. Although this will be a lab-based presentation, most of the software use will also be freely available for students to use at asynchronously.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Tutorial / Synchronous Support Activity	12
Laboratory / Practical Demonstration / Workshop	36
Independent Study	152
Please select	
Please select	
Please select	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

www.dbaudio.com. (n.d.). ArrayCalc | d&b audiotechnik. [online] Available at: https://www.dbaudio.com/global/en/products/software/arraycalc/#tab-downloads (Accessed 1st April 2025)

Array Calc tutorials linked from UWS VLE

V9.0 Available at: https://www.youtube.com/watch?v=jpWPyYTFCEc&list=PLqQ0oXYov46CsjvxgyxKjMKgja2wr1JBH (Accessed 1st April 2025)

V12 Available at:

https://www.youtube.com/watch?v=RIeXE_ATWCg (Accessed 1st April 2025)

Other competitor design products.

Ahnert, Wolfgang, et al. Sound Reinforcement for Audio Engineers. S.L., Routledge, 2022.

A useful reference text is: McCarthy, B. (2016). Sound systems - design and optimization: modern techniques and tools for sound system design and alignment. New York: Focal Press

(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements

In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following:

Students must engage in sharing and discussing their software simulation activities in-person or online as appropriate in preparation for submission.

The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity

The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.

In order for the student to complete this module an element of computer simulation using sound design software will require to be undertaken.

This module is designed to provide equal opportunities for all students irrespective of their age, disability, gender, sexual orientation, race, colour, nationality, ethnicity, religion, beliefs, or sexual orientation. Reasonable adjustments can be made if related issues arise. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☒ **Yes** ☐ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Creative Computing
Moderator	Colin Grassie
External Examiner	G N Aurriccio
Accreditation Details	This module is as part of BSc (Hons) Music Technology programme accredited by JAMES
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Report on the design and simulation of a sound system for a specified venue description (100%)
Assessment 2
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Creative output/ Documented Simulations	☒	☒	☒	☒	☐	100	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	When	Who