

Module Code:	CMT603
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Module Title:	Live Systems
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Level:	6	Credit Value:	20
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Cost Centre(s):	GACT	<u>JACS3</u> code:	J930
		<u>HECoS</u> code:	100222

Faculty:	Arts, Science and Technology	Module Leader:	Colin Heron
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Scheduled learning and teaching hours	48hrs
Guided independent study	152hrs
Placement	0hrs
Module duration (total hours)	200hrs

Programme(s) in which to be offered	Core	Option
BSc (Hons) Sound Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BSc (Hons) Music Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BSc (Hons) Professional Sound & Video	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BSc (Hons) Live Sound	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: August 16

Version no:1

With effect from: 01/09/2019

Date and details of revision: Reapproved by AB 13/03/18 as part of reval for BSc (Hons) Live Sound

Version no:2

Module Aims

The aim of this module is to equip the student with the necessary skill set and knowledge to design and optimise large scale installed and touring sound systems. This will be delivered by investigating the science of building speaker systems at component level. The focus of the module will then address DSP driven systems that rely heavily on new and emerging network/software protocols for the delivery of high quality audio. The module will take the underlying theories and apply them to real world scenarios such as arena and festival sound systems.

Intended Learning Outcomes

Key skills for employability

- KS1 Written, oral and media communication skills
- KS2 Leadership, team working and networking skills
- KS3 Opportunity, creativity and problem solving skills
- KS4 Information technology skills and digital literacy
- KS5 Information management skills
- KS6 Research skills
- KS7 Intercultural and sustainability skills
- KS8 Career management skills
- KS9 Learning to learn (managing personal and professional development, self-management)
- KS10 Numeracy

At the end of this module, students will be able to

Key Skills

At the end of this module, students will be able to		Key Skills	
1	Analyse the fundamental science of loudspeaker design and operating principles as applied to small scale systems	KS1	KS3
		KS4	KS6
		KS10	
2	Conceptualise and define large scale sound systems with reference to environmental and quality criteria	KS1	KS3
		KS5	KS6
		KS10	
3	Critically evaluate a broad range of approaches and technologies to synthesise solutions to real world scenarios with regard to high-quality audio systems	KS1	KS6
		KS9	KS10
4	Apply relevant research from sources such as the Audio Engineering Society to inform the formulation of a working solution	KS5	KS6
		KS10	

Transferable/key skills and other attributes

Project management
Technical Analysis
Research Skills

Derogations

None

Assessment:

Assignment 1: The project will be the evaluation of a broad range of research materials regarding large-scale sound system design and implementation. The work will evaluate the possible theoretical approaches adopted by the industry and will be supported by detailed analysis of the technological and environmental factors that influence the design process for given scenarios. During this exercise the student will also discuss the role of digital signal processing (DSP) solutions that have evolved to optimise the performance of the system.

Assignment 2: The poster presentation will demonstrate the results of an experiment regarding the performance of a speaker system. It will demonstrate the predicted performance of the system and then compare this data to the actual measured values.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	2, 3, 4	Project	70%		2000
2	1, 4	Poster Presentation	30%		Single A2 Sheet

Learning and Teaching Strategies:

The module will be presented as a series of lectures.
Seminars will be conducted to explore the use of associated software.

Syllabus outline:

- Thiele Small parameters
- Enclosure design and principles
- Transmission Principles
- Environmental Factors
- Evaluation
- Principles of Prediction
- Variance
- Advanced System Specification
- System Optimisation
- Calibration and Verification

Bibliography:

Essential reading

Everest, F. A. (2015). Master Handbook Of Acoustics. McGraw Hill
Grimes, B. (2014). Networked AV systems: McGraw Hill Education
McCarthy, Bob. (2016). Sound System Design and Optimization: Modern Techniques and Tools for Sound System Design and Alignment. 2nd Edition. Oxford: Focal Press
Toole, Floyd. (2008). Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms. New York: Elsevier

Other indicative reading

Eargle, John.(2003) Loudspeaker Handbook. Massachusetts: Kluwer Academic Publishers
Forman, John Eargle Chris. (2002) Jbl Audio Engineering for Sound Reinforcement.
Milwaukee: Hal Leonard Audio Engineering Society – Journal and e-Library
<http://www.aes.org>