MODULE SPECIFICATION PROFORMA

Module Code:	CMT609

Module Title:	Spatial Audio

Level:	6	**Credit Value:**	20

Cost Centre(s):	GACT	JACS3 **code**: HECoS code:	J930 100222

Faculty:	Arts, Science and Technology	**Module Leader:**	Steffan Owens

Scheduled learning and teaching hours	48 hrs
Guided independent study	152 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
BA (Hons) Sound Design	✓	☐

Pre-requisites

Office use only
Initial approval: 13/03/2018
With effect from: 01/09/2019
Date and details of revision:

Version no: 1

Version no:1

Module Aims

This module addresses the processes and acquisition of mono, stereo, binaural, quadraphonic and ambisonic audio. The module provides comprehensive coverage of the theories and practices of spatial audio recording and production.
The content of the module develops the skills required for recording, encoding and producing audio artefacts in multiple formats for visual media such as VR, game and film.

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	
1	Systematically examine spatial audio and create assets, using a variety of techniques.	KS1	KS4
		KS2	KS3
2	Professionally manage the process of delivering a small-scale audio project.	KS2	KS10
		KS3	KS5
3	Evaluate spatial audio techniques from a selection of application and technical perspectives.	KS1	KS6
		KS3	KS10
		KS4	

Transferable skills and other attributes

- The ability to stay motivated throughout a challenging degree programme, to manage time efficiently and meet all deadlines promptly;
- Undertake detailed research in a methodical and productive way utilising a wide variety of resources;
- Apply analytical and theoretical skills to a technical project

Derogations

None

Assessment:

Indicative Assessment Tasks:

Assignment 1: Produce a sound library in multiple formats. Students will develop an asset list for a selected situation or environment and record and produce audio files in multiple formats e.g. mono, stereo, binaural, quadraphonic and ambisonic.
The final library should be hosted online and available to the general public.

Assignment 2: Produce a technical report that critically analyses the differing techniques for capturing spatial audio. Students will choose two or more audio acquisition techniques (e.g. stereo & quadraphonic) and produce test recordings using these techniques. The technical report will investigate and evaluate the differences in the techniques. The students will then research and compare these to contemporary industry audio practices.

Ideally, **Assignment 1** and **Assignment 2** will be linked. Audio recordings for Assignment 1 will be used in the technical report for **Assignment 2**.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1, 2	Portfolio	60		2200
2	3	Report	40		1800

Learning and Teaching Strategies:

The delivery of the module will include a range of teaching methods, including lectures, seminar examination of case studies, project work, tutorials and practical studio work.

Syllabus outline:

The module content will include:

- Localisation;
- Head Related Transfer Function;
- Inter-aural Time Difference;
- Inter-aural Level Difference;
- Wavefield Synthesis;
- Stereo Microphone Techniques;
- Binauralisation;
- Quadraphonic Technique;
- 1^{st} – 5^{th} Order Ambisonic Arrays;
- Equally Spaced Microphone Arrays;
- Acoustic Considerations;
- A and B Format Encoding and Implementation;
- Audio and Data Compression;

Indicative Bibliography:
Essential reading
Eargle, J. (2011). The Microphone Book (3rd Ed). Oxford: Focal Press. Holman, T. (2008). Surround Sound: Up and running (2nd Ed). Oxford: Focal Press. Rumsey, F. (2013). Spatial Audio (2nd Ed). Oxford: Focal Press.
Other indicative reading