6.25 Module 25: Sound Design for Games

Module Title	Sound Design for Games
Module NFQ Level (only if an NFQ level can be demonstrated)	8
Module number/Reference	BAAMT307
Parent Programme	BA (Hons) in Audio and Music Technology
Stage of Parent Programme	3
Semester	1
Module Credit Units (FET/HET/ECTS)	ECTS
Module Credit number of Units	5
List the teaching and learning modes	FT
Entry requirements (statement of knowledge, skill and competence)	Learner has earned Level 5 qualification. No previous experience is required
Pre-requisite module titles	None
Co-requisite module titles	None
Is this a capstone module? (Yes or No)	No
Staff qualifications (academic, pedagogical and professional/occupational) and experience required. (staff includes workplace personnel who are responsible for learners such as apprentices, trainees and learners in clinical placements)	Staff are required to have at least a Master's qualification in Sound Design or related discipline. Industry experience would be a benefit but is not a requirement. Staff are expected to have the Certificate in Training and Education qualification from Griffith College or its equivalent.
Staff/learner ratio per centre (or instance of the module)	For lecture load, ratio of 1:50 lecturer to learner is required and in lab sessions the maximum allowed is 1:25 The lecturer will also have 1 hour per week set aside in their timetable for 1:1 contact with learners who require it or have particular items they want to discuss.
Maximum number of learners per centre (or instance of the module)	50
Duration of the Module	One Academic Semester, 12 weeks teaching
Average (over the duration of the module) of the contact hours per week.	3
Physical resources and support required per centre (or instance of the module)	One lecture hall with capacity at least 50 and one practical lab with PA system.

Analysis of Required Learning Effort										
Effort while in contact with staff										
Classroom and Demonstrations		Mentoring and small group tutoring		Other (Specify)		Directed e-learning (hours)	Independent learning (hours)	Other hours (specify)	Work-based learning hours of learning effort	Total Effort (hours)
Hours	Minimum ratio teacher/learner	Hours	Minimum ratio teacher/learner	Hours	Minimum ratio teacher/learner					
24	1:50	12	1:25				89			125
Allocation of marks (within the module)										
				Continuous Assessment	Supervised Project	Proctored practical	Proctored Written Examination		Total	
Percentage contribution					100%				100%	

6.25.1 Module Aims and Objectives

This module is intended to introduce the potential of the game audio industry to the learner. Game audio design processes is taught using incremental steps using industry standard game engines and audio middleware applications. Learners examine the role of audio design in the creation of interactive virtual environments. The principles of audio design for games will be underpinned with a survey of historical, theoretical and practical processes within the area.

6.25.2 Minimum Intended Module Learning Outcomes

On successful completion of this module the learner will be able to:

MLO 25.1	Evaluate current industry requirements for the effective implementation of audio within games.
MLO 25.2	Manage sound world creation and implementation to a professional standard
MLO 25.3	Evidence advanced, specialist knowledge of dynamic sound environments
MLO 25.4	Analyse and critique key practitioners and seminal works within game audio.

6.25.3 Rationale for inclusion of the module in the programme and its contribution to the overall IPLOs

The computer games industry is technology-fuelled environment with many possibilities for the innovative audio designer. This module, much like module 22 for film/tv industry, will again broaden the skillset of the learner, familiarising them with the workflows and practises of the audio for games industry. The learning in this module will contribute to Programme Learning Outcomes 1 and 3 while also providing supplementary learning for Outcome 12.

6.25.4 Information Provided to Learners about the Module

Learners enrolled on this module will receive a copy of the module descriptor and assignment briefs, including an outline of the criteria for assessment.

Previous examples of assignments are also presented to the class.

6.25.5 Module Content, Organisation and Structure

The module is organised to deliver theory through lectures (2 hours) and supervised tutorials (1 hours). During tutorials, learners will work individually on computer workstations. This will allow the lecturer to work with smaller groups to demonstrate the material. The lectures each week will combine lecture delivery and discussion on the material.

Each lecturer has a time allocated for one-to-one meetings with learners as required. These are not mandatory sessions but available either where the lecturer wishes to discuss an element of the module with a learner, or a learner requests a meeting to discuss a particular topic. These sessions focus on academic issues only.

Module Content:
Games genres and roles within the games industry
- Audio requirements within the game environment.
- Definitions of the roles within the game audio industry.
- Production concepts within game audio.

Sound world creation and implementation
- Sound asset creation.
- Design practices for an interactive sound world.
- Implementation processes using an industry standard game engine.

Dynamic sound environments
- Soundscape and dynamic sound environments.
- Audio behavioural design within an interactive environment.
- Game audio design documentation.

Analysis of the key practitioners and seminal works within game audio
- Evidence of research.
- Audio production theory.
- Game audio development stages.
- Key practitioners & seminal works.

6.25.6 Module Teaching and Learning Strategy

This module is delivered using a combination of lectures, tutorials and practical sessions. The emphasis will be on learners to take the theoretical knowledge and apply it practically to develop in the areas of game engines and industry standard audio middleware. Industry professionals will conduct workshops and discuss standards, techniques and best practice for session management for the games industry.

Activity	Teaching / Learning Strategy	Learning Environment
Lecture (24 hours)	Lectures / participative discussions / case studies of game audio design techniques	College
Tutorial (12 hours)	Demonstrations of lecture theory / practice using game audio design workflows / practical demonstrations to link theory and practice / training using recording hardware and software	College / Mac lab
Assignment (48 hours)	Practice learning and perfecting sound design for games skills	College
Independent Work (41 hours)	Directed and self-directed learning / home study	College / Home

6.25.7 Timetabling, Learner Effort and Credit

The module is timetabled as one 3-hour session to the whole class. These will generally take the form of a 2-hour lecture followed by a 1-hour tutorial on workstations allowing the lecturer to work individually with learners to demonstrate the material.

It is our view that 5 ECTS of learner effort is required by learners coming new to the material to achieve the learning outcomes required.

6.25.8 Work-based Learning and Practice-placement

There is no work based learning or practical placement involved in the module.

6.25.9 E-Learning

The College VLE is used to disseminate notes, advice and online resources to support the learners. The learners are also given access to Lynda.com as a resource for reference.

6.25.10 Module Physical Resource Requirements

Requirements are for a fully equipped lecture hall and access for each group to a lab with computer workstations.   Each workstation should have audio synthesis and editing software and have industry standard middleware packages.   Learners will require bookable studio access for recording elements.

6.25.11 Reading Lists and other Information Resources

Recommended Reading
Collins, K. (2013) *Playing with sound: a theory of interacting with sound and music in video games.* Boston MA: MIT Press.
House, M. (2017) *Spatial Audio (From: Virtual Reality, An Overview for Developers)* Lynda.com
Looney, S. & Horowitz, S. (2014) *The essential guide to game audio. Oxford: Focal Press.*
Marks, A, (2013) *The complete guide to game audio: for composers, musicians, sound designers, and game developers*
Stevens, R & Raybould, D. (2013) *The game audio tutorial: a practical guide to sound and music for interactive games.* Oxford: Focal Press.

Supplemental Reading
Barr, C. (2017)   *Virtual Reality Foundations* Lynda.com
Brandon, A. (2004) *Audio for games: planning, process, and production.* Berkeley CA: New Riders Games.
Childs, G.W. (2007) *Creating Music and Sound for Games.* Cengage Learning.
Collins, K. (2008) *Game sound: an introduction to the history, theory and practice of video game sound.* Boston MA: MIT Press
Hoffert, P. (2007) Music *for new media: composing for videogames, websites, presentations and other interactive media.* Boston MA: Berklee Press.
Collins, K. 2008. *From Pac-Man to Pop Music: Interactive Audio in Games and New Media.* Ashgate.
Stevens, R & Raybould, D. (2013) G*ame audio implementation.* Oxford: Focal Press
Wilde, M.D. (2004) *Audio programming for interactive games: the computer music of games.* Oxford: Focal Press
http://iasig.org
http://filmsound.org/game-audio/
http://gamesounddesign.com
http://wikindx.com/gameaudio/wikindx4/

6.25.12 Specifications of Module Staffing Requirements

For each instance of the modules, one lecturer qualified to at least Master's level in music technology or equivalent, and with a relevant third level teaching qualification (e.g. Certificate in Training and Education). Depending on numbers a lab assistant may be required. Where this is the case the Assistant will be required to have a sound understanding of sound design, either through industry experience or academic qualification. For example, a postgraduate student of Audio and Music Production may be suitable to assist the lecturer in lab sessions. Any lab assistant will work under the supervision of the lecturer.

6.25.13   Module Assessment Strategy

Element No	Weighting	Type	Description	Learning Outcomes Assessed
1	40%	Presentation	Learners will research the work of a key practitioner of a game audio designer. They will present their findings as an in-class presentation using presentation software.	23.1, 23.2, 23.3
2	60%	Assignment	Learners will be provided with a game by the tutor for which they will create a dynamic, multi-channel spatial audio soundtrack using game audio software and audio production techniques with an accompanying technical log. As part of the assignment, learners will be required to attend scheduled meeting with a tutor for feedback. This will contribute to a continuous assessment element.	23.1 – 23.4

6.25.14   Sample Assessment Materials

Assignment 1 – Presentation:
You must choose any key Sound Designer form the games industry. Once chosen, you will research the collected work of the chosen practitioner.

You will then do an in-class presentation of your research.
Your presentation should consist of no more than 20 slides, each no more than 20 seconds in duration. You must use presentation software to present your material.

Assignment 2 – Dynamic Audio Soundtrack.
Your tutor will provide you with a game.
You must then implement and dynamic audio soundtrack for the game provided. You will implement your original audio into the game engine. The audio must contain some stereo and surround sound and/or spatial elements.