

6.22 Module 22: Studio Design and Setup

Module Title	Studio Design and Setup
Module NFQ Level (only if an NFQ level can be demonstrated)	8
Module number/Reference	BAAMT304
Parent Programme	BA (HONS) Audio and Music Technology
Stage of Parent Programme	3
Semester	2
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 applications technology ability 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 Audio and Music Technology 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 computer lab with capacity of 25.

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					
24	1:50	12	1:25			89			125
Allocation of marks (within the module)									
					Continuous Assessment	Supervised Project(s)	Proctored practical	Proctored Written Examination	Total
Percentage contribution						100%			100%

6.22.1 Module Aims and Objectives

The module aims to provide practical and theoretical knowledge in the main areas of studio design and installation. The learner will become familiar with various systems and operations using industry software currently used in acoustic analysis. Learners are provided with the knowledge to design, and correctly identify the positioning necessary for bass traps, baffles, acoustic absorption and diffusers.

6.22.2 Minimum Intended Module Learning Outcomes.

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

- MLO 22.1 Analyse and critique the acoustics of a room.
- MLO 22.2 Evaluate the design and use of acoustic modifiers.
- MLO 22.3 Assess and evaluate a broad range of acoustic principles.
- MLO 22.4 Use acoustical analysis to identify problems and propose solutions specifying appropriate monitoring equipment and setup suitable for the particular environment

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

Professional audio is no longer confined to the purpose-built recording studios. Professionals set up studios in an array of environment these days. It could be a converted attic, a spare room in the home, or a shed, insulated and treated. This module will enable the learners to design and treat their own existing space to improve the acoustic properties of the room and allow for accurate production of sound/music. The learning here will help learners achieve Programme Learning Outcomes 1 and 8, while also contributing to learning outcome 4.

6.22.4 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.

6.22.5 Module Content, Organisation and Structure

The module is organised to deliver theory through lectures (2 Hours) and supervised tutorials (1 Hour). During tutorials, each learner will have a workstation allowing the lecturer to work individually with learners to demonstrate and explain 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

Room Acoustics

- An ability to set up an FFT and Spectrogram analyser
- An ability to carry out FFT and Spectrogram analysis correctly
- An understanding of the results of the FFT and Spectrogram
- An ability to identify the causes of irregularities or acoustic issues within the room

Design and use of acoustic modifiers

- An understanding of the design and application of acoustic absorbers, Diffusers, Bass Traps, Baffles.
- An ability to identify the need for acoustic modifications, and design room solutions applying the use of acoustic modifiers.

Acoustic principles

- An understanding of, reflection, absorption, diffusion.
- An understanding of standing waves, flutter echo, reverberation time, sound transmission,
- An understanding of designing and building acoustic panels and bass traps,
- An understanding of sound isolation

Speaker setup

- An understanding of speaker alignment
- An understanding of tonal changes from room positioning
- An understanding of phase alignment of speakers

6.22.6 Module Teaching and Learning Strategy

Classes are used to explain the concepts, exemplify the techniques, and solve (in workshop style) a series of exercises and problems. Developing a learner's ability in acoustics and design requires constant reinforcement and so questions and problems are worked through both as tutorials and by the learner outside of direct contact hours. During tutorials, each learner will have a workstation/exercise allowing the lecturer to work individually with learners to demonstrate and explain the material.

Activity	Teaching / Learning Strategy	Learning Environment
Lecture (24 hours)	Lectures / participative discussions / case studies of studio spaces and studio design theory	College
Tutorial (12 hours)	Demonstrations of lecture theory in a studio environment / practice using studio design theory / practical demonstrations to link theory and practice	College / Studio
Assignment (48 hours)	Practice learning and perfecting studio design skills	College
Independent Work (41 hours)	Directed and self-directed learning / home study	College / Home

6.22.7 Timetabling, Learner Effort and Credit

The module is timetabled as one 3-hour session to the whole class. This will consist of the 2-hour lecture, and a 1-hour studio or lab tutorial.

The number of credits assigned to this module is our assessment of the amount of learner effort required. 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.

6.22.8 Work-based Learning and Practice-placement

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

6.22.9 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.

6.22.10 Module Physical Resource Requirements

Requirements are for a fully equipped lecture hall and access to one or more recording studios. In the recording studios, there should be an analogue and digital processing equipment. Industry standard monitoring will be required for each studio for analysis of material.

6.22.11 Reading Lists and Other Learning Materials

Recommended Reading

Everest, F.A. & Pohlmann, K.C. (2015) *Master handbook of Acoustics*. New York: Mc Graw-Hill.

Newell, P. (2011) *Recording studio design*. Oxford: Focal Press.

Rossing, T., Moore, R.F. & Wheeler, P.A. (2001) *The science of sound* Reading MA: Addison-Wesley.

Supplemental Reading

Beranek, L.L. & Mellow, T.T. (2012) *Acoustics: sound fields and transducers* Amsterdam: Elsevier

Long, M. (2014). *Architectural acoustics*. Amsterdam: Elsevier

Gallagher, M. (2006) *Acoustics for the home and project studio*. Boston MA: Thomson Course Technology PTR.

Blessner, B. & Salter, L.R. (2009) *Spaces speak, are you listening?: experiencing aural architecture*, Cambridge Mass.: MIT Press.

White, P. (2003) *Basic home studio design*, London: SMT.

6.22.12 Specifications of Module Staffing Requirements

For each instance of the module, there will be one lecturer qualified to at least Master's level in Acoustics 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 music technology and computer based workstations, 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.

6.22.13 Module Summative Assessment Strategy

Assessment Element	Percentage Weighting	Description	Module Outcomes
Assignment	100%	Room measurement and analysis reporting issues. Learners are required to complete an acoustical survey of a room that with a view to the room becoming a recording/listening environment. Studio design and acoustic solution to improve the room. As part of the project, learners will be required to attend scheduled meetings with a tutor for feedback. This will contribute to a continuous assessment element.	20.1 – 20.5

6.22.14 Sample Assessment Materials

Studio Design: Assignment

For this assignment, you must analyse and design a space for use as a recording/listening environment.

You must complete the following:

Part 1: Acoustical survey and analysis. (50%)

1. Complete an acoustical survey of a room/space – to include an FFT and Spectrogram analysis
2. Based on your findings, identify any/all acoustical issues with the room.

Part 2: Acoustic Solution and Studio Design. (50%)

1. Design and equip the studio space.

Develop a plan to improve the acoustics of the room. Include detail on isolation, absorption, reflection and dispersion. Include a floor plan of the space identifying positioning of all acoustic treatment suggested for the room. Make sure to include detail on materials used for any/all treatments. A complete equipment list should also be included.