Module Specification

Acoustics

Version: 2028-29, v2.0, Approved

Contents

Part 1: Information

Module title: Acoustics

Module code: UFCFTJ-15-3

Level: Level 6

For implementation from: 2028-29

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module explores the interplay between sound and space—where physics meets design, and where acoustical theory becomes a practical tool for shaping performance environments. It teaches the fundamentals of sound propagation, reflection, absorption, and resonance, while delving into signal processing techniques that help us measure, interpret, and refine acoustic experiences. Students will gain the skills to assess and adjust acoustic environments with confidence. Whether designing for speech clarity or musical richness, this

module will equip students with the knowledge to make design effectively for optimum acoustics.

Features: Not applicable

Educational aims: This module aims to develop students' understanding of how sound behaves in physical spaces and how acoustic principles can be applied to shape environments for optimal auditory experiences. Bridging theory and practice, it introduces the scientific foundations of acoustics—including sound propagation, reflection, absorption, and resonance—alongside digital signal processing techniques used to measure and interpret acoustic phenomena.

Students will explore the acoustic design of architectural spaces, studios, and live venues, gaining the ability to assess and specify treatments that enhance clarity, richness, and isolation. Through hands-on analysis and critical engagement with industry standards and research methods, the module equips students with the skills to make informed, creative, and technically sound decisions in diverse acoustic contexts.

By the end of the module, students will be prepared to contribute confidently to the design and evaluation of acoustic environments, whether in professional audio production, architectural planning, or applied research.

Outline syllabus: Topics are likely to include but not be limited to:

Fundamental acoustics for architecture

Acoustic maths, measurements and indices

Describing and assessing room acoustics

Signal processing

Sound absorption / reverberation

Sound insulation

Vibration and vibration isolation

Live venues (including planning)

Professional and home studio design

Advanced electroacoustic systems

Acoustic research methods

Part 3: Teaching and learning methods

Teaching and learning methods: This module is delivered through a combination of weekly lectorials, guided practical investigations, and independent coursework, designed to foster deep conceptual understanding and applied technical competence in acoustics.

Each lectorial integrates a structured lecture with a practical demonstration or investigation. Lectures introduce core theoretical principles—such as sound propagation, room acoustics, and signal processing—while demonstrations contextualise these ideas through real-world examples and hands-on exploration. This blended approach supports active learning and helps students connect abstract concepts with tangible applications.

Students are encouraged to engage critically and creatively with acoustic environments through independent coursework. Working with example spaces—ranging from studios to live venues—they will apply measurement techniques, interpret acoustic data, and propose design solutions. This promotes autonomy, problem-solving, and reflective practice.

Learning is supported by:

Access to specialist software and equipment, enabling students to conduct acoustic analysis and simulations.

Opportunities for peer discussion and collaborative inquiry, fostering a community of practice.

The module design reflects the Enhancement Framework Design Principles, particularly:

Active and inclusive learning: Students engage with diverse acoustic contexts and

are supported to develop their own analytical and design approaches.

Authentic assessment: Coursework tasks mirror professional and research practices in acoustics.

Scaffolded development: Concepts and skills build progressively across the module, with feedback and guidance embedded throughout.

By combining theoretical rigour with practical exploration, the module prepares students to contribute confidently to acoustic design and evaluation in both professional and academic settings.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Measure, analyse, and interpret acoustic signals, spaces and systems using standardised methods and digital signal processing, aligned with industry and research practices.

MO2 Specify and evaluate acoustic requirements and treatments, referencing relevant standards and regulations.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufcftj-15-3.html

Part 4: Assessment

Assessment strategy: The assessment for this module is designed to enable students to demonstrate their ability to analyse acoustic environments, apply

appropriate measurement and signal processing techniques, and propose design solutions that reflect current industry and research practices.

Students will complete a single summative assessment, choosing either a written report or presentation. This flexibility allows students to communicate their findings in a format that aligns with their strengths and professional goals. Both formats require students to define the aims and context of their project, describe and justify their testing and analysis methods, and present observations and recommendations informed by relevant standards and acoustic principles.

This assessment type has been selected to reflect authentic professional practice in acoustics, where practitioners are expected to communicate technical findings clearly and persuasively. It also supports the wider programme's emphasis on applied learning, interdisciplinary thinking, and the development of transferable skills in analysis, evaluation, and communication.

To support student learning and progression, formative feedback is provided in all teaching sessions. This gives students an opportunity to test their methods, receive guidance, and refine their approach ahead of the final submission.

Plagiarism is designed out by requiring students to engage with unique acoustic environments and document their own analytical journey. The requirement to interpret technical data and apply standards makes replication difficult without genuine engagement, and all written submissions are subject to originality checks.

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Assessment tasks:

Choice of Assessment (First Sit)
Description: 2,500 word Report or 15 minute presentation on acoustics investigation
Weighting: 100 %
Final assessment: Yes
Group work: No

Learning outcomes tested: MO1, MO2

Choice of Assessment (Resit)

Description: 2,500 word Report or 15 minute presentation on acoustics investigation

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Audio and Music Technology [Frenchay] BSc (Hons) 2025-26

Creative Music Technology [Frenchay] BSc (Hons) 2025-26

Creative Music Technology [Frenchay] BSc (Hons) 2025-26

Audio and Music Technology [Frenchay] BSc (Hons) 2025-26

Audio and Music Technology [Frenchay] BSc (Hons) 2026-27

Creative Music Technology [Frenchay] BSc (Hons) 2026-27

Audio and Music Technology [Frenchay] BSc (Hons) 2026-27

Creative Music Technology [Frenchay] BSc (Hons) 2026-27

Creative Music Technology [Frenchay] BSc (Hons) 2025-26

Audio and Music Technology [Frenchay] BSc (Hons) 2025-26