



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Introduction to the Study of Sound

Academic Year 2024/2025

1. Organic Unit

Faculty of Architecture and Arts

2. Course

JAZZ AND MODERN MUSIC

3. Cycle

1st

4. Course Unit

Introduction to the Study of Sound (C6212)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

2nd Semester



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8. Class type and workload (work time)

Theoretical classes:

Practical classes:

Theoretical-Practical Classes 30,00

Tutorial Guidance: 20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutora GRÉCIA DESIREE FALCAO DE ARAUJO

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

The curricular unit covers essential notions of acoustics applied to audio production and reproduction. This introductory and theoretical-practical knowledge is fundamental for creating a professional sound piece, using psychoacoustics typologies, techniques and stylistics for experimentation and creation. The objective is to prepare students to integrate musical and sound production into media and multimedia objects, with special emphasis on the areas of entertainment and advertising.

15. Specific Objectives

- Understand acoustic phenomena and relate them to physiological, sound and musical phenomena.
- Understand sound as a phenomenon that modulates emotions.
- Understand the cognitive and ecological dimensions of the soundscape.
- Understand the electroacoustic principles that lead to the possibility of recording, digitizing and reproducing sound.

16. Skills to be acquired



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- Basic understanding of the fundamental concepts of acoustics.
- Development of the ability to relate physical phenomena with psychological and physiological phenomena.
- Development of the ability to relate the acoustic phenomenon with analogue and digital electronic representation.
- Ability to use sound manipulation software for design for media/multimedia products.

17. Teaching Methodology

Expository classes; guided readings and studies; practical exercises using appropriate devices and software; exercises.

18. Course Unit Program

1. Introduction to sound theory and acoustic phenomena:
 - a. The speed of sound in space.
 - b. Sine waves.
 - c. Frequency, amplitude, phase, wavelength.
 - d. Intensity measurements:
 - i. Sound Pressure.
 - ii. Sound Power.
 - iii. Acoustic Intensity.
 - e. Levels: decibel study.
 - i. Sound Pressure Level (SPL).
 - ii. Acoustic Power Level (SWL).
 - iii. Sound Intensity Level (SIL).
 - f. Modal systems and resonance.
 - g. Sound interactions:
 - i. Absorption.
 - ii. Reflection.
 - iii. Transmission.
 - iv. Diffusion.
 - v. Refraction.
 - vi. Diffraction.
 - h. Reverberation, the propagation of sound in space.
2. Psychoacoustics:
 - a. The Fletcher-Munson curves.
 - b. Critical bands and masks.
 - c. Haas effect.
 - d. Neurological phenomena of the psychoacoustic nature.
 - e. Sound and emotion.
 - f. Soundscape ecology.
3. Sound art for multimedia:
 - a. The electrical and electronic phenomenon applied to sound.
 - b. Relationship between audio and moving image:
 - i. sound environment, soundtrack, voices and special effects;
 - c. Construction of narrative and messages;
 - d. Psychological, emotional and physical effects created.
 - e. Sound typology:
 - i. Diegetic sound,
 - ii. non-diegetic,
 - iii. meta diegetic and dreamlike sound;
 - f. Sound libraries;
 - g. Audio editing tutorials using professional software.

19. Assessment Methods

The continuous assessment methodology follows the general regulations of Universidade Lusíada, as well as the Specific Assessment Rules for the Degree in Jazz and Modern Music.

20. Didactic Resources

Specialized bibliography; multimedia projector; multimedia case studies using suitable software for carrying out exercises.

21. Sustainability Objectives



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22. Keywords

acoustics; sound; perception; sound art; sound editing; sound for multimedia.

23. Main Bibliography

Author(s): Schafer, R. M.
Title: Soundscape: Our Sonic Environment and the Tuning of the World.
Edition: 2^a Year: 1994
Local: Nova Iorque
Publisher: Destiny Books

Author(s): Huron, D.
Title: Sweet Anticipation: Music and the Psychology of Expectation.
Edition: 1^a Year: 2006
Local: Boston
Publisher: MIT Press

Author(s): Heller, E.
Title: Why You Hear What You Hear.
Edition: 1^a Year: 2012
Local: New Jersey
Publisher: Princeton University Press

24. Complementary Bibliography

Author(s): Sonnenschein, D.
Title: Sound Design: The Expressive Power of Music, Voice and Sound Effects in Cinema.
Edition: 1^a Year: 2001
Local: Los Angeles
Publisher: Michael Wiese Productions

Author(s): Elmosnino, S.
Title: Audio Production Principles: Practical Studio Applications.
Edition: 1^a Year: 2018
Local: Oxford
Publisher: Oxford University Press



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