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Course Unit	Audio for Games			Field of study	Game Design/Audio-visual
Bachelor in	Game Design			School	School of Public Management, Communication and Tourism
Academic Year	2023/2024	Year of study	3	Level	1-3	ECTS credits	6.0
Type	Semestral	Semester	1	Code	8309-801-3102-00-23

Workload (hours)	162	Contact hours	T	-	TP	30	PL	30	TC	-	S	-	E	-	OT	-	O	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s)	Barbara Costa Vilas Boas Barroso, Brendan Rui Hemsworth

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Understand differences between digital and analogical sound;
2. Recognize and apply basic conceptual principles of sound for audiovisual and games;
3. Recognize and create different sound formats;
4. Understand the phenomena of physical, psychological and cultural perception of sound and produce in response to them;
5. Recognize and apply the different rules and techniques of sound recording;
6. Apply knowledge of and to use tools of sound editing;
7. Understand and employ key design principles for audio-based games;
8. Analyse themes, compositional structures, models and techniques present in sound with different formats and functions.

Prerequisites

Before the course unit the learner is expected to be able to:
Understand the audiovisual production process; understand the game design process.

Course contents

The content to be developed comprises: physical dimensions of sound, sound wave propagation and acoustics of spaces; hearing; voice and expression techniques for actors; instrument acoustics, musical periods and styles; sound signal processing and digital audio operations; sound for audiovisual and transmedia projects; sound post-production; audio workflow for digital games.

Course contents (extended version)

1. Technology, formats and functions of sound.
2. Physical dimension:
   - Sound propagation;
   - Architectural acoustics;
   - Instrument acoustics.
3. Perceptual dimension:
   - Human hearing;
   - Human voice;
   - Oral expression techniques and directing actors;
   - Dialogue in digital games.
4. Cultural dimension:
   - Brief overview of western music styles and periods;
   - Terminology and conventions.
5. The 3 work stages:
   - Pre-production;
   - Recording / using data;
   - Post-production.
6. Sound treatment:
   - Microphones and placement;
   - Recorders and their operation.
7. Sound in audiovisual:
   - Overview of sound in cinema;
   - Foley vs. Sound libraries;
   - Sound design.
8. Audio for games:
   - Overview of sound in games;
   - Types of audio in games;
   - Pre-production and constraints;
   - Production and aesthetics;
   - Post-production, blending the total soundscape and musical consistency.
9. Audio-based games:
   - Audio as a central element of mechanics, dynamics and aesthetics;
   - Rythm-based games;
   - Audio-based games.
10. Case studies (audiovisual, digital games, transmedia).

Recommended reading

1. Phillips, W. (2017). A Composer's Guide to Game Music. Cambridge, USA: MIT Press Ltd. [ISBN: 9780262534499]
2. Fonseca, Nuno (2012) Introdução à engenharia de som. FCA Editora. [ISBN: 9789727227280]
3. Marks, A. (2017). The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers, Game Developers. 3rd ed. Burlington, MA: Focal Press. [ISBN: 978-1138795389]
4. Schutze, S. & Irwin-Schutze, A. (2018). New Realities in Audio: A Practical Guide for VR, AR, MR and 360 Video. London, UK: Taylor & Francis Ltd. [ISBN: 9781138740815]
5. Sinclair, J. -L. (2020). Principles of Game Audio and Sound Design. 1st ed. Focal Press. [ISBN: 978-1138738973]

Teaching and learning methods

Lecture and demonstrative methods, for contact with the fundamental concepts and their application in exemplary cases, and active method, in which students must take the initiative to solve exercises and carry out work and projects, in order to allow a better consolidation of acquired knowledge. Peer review.

Assessment methods

1. FINAL EVALUATION (internal and mobility): - (Regular, Student Worker) (Final, Supplementary, Special)
   - Portfolio - 30% ([individual] Exercises and assignments started in class.)
   - Intermediate Written Test - 10% ([individual] About the subjects covered in class.)
   - Development Topics - 10% ([group] Project developed within the scope of the Interdisciplinary Week.)
   - Projects - 50% ([group] Sound design and implementation for the Project between Curricular Units of the Semester.)
2. STUDENT-WORKER (if without class frequency): - (Student Worker) (Final, Supplementary, Special)
   - Practical Work - 30% ((Single) Group of 3 assignments solved outside of class, but with tutorial aid.)
   - Intermediate Written Test - 10% ([individual] About the subjects covered in class.)
   - Development Topics - 10% ([group] Project developed within the scope of the Interdisciplinary Week.)
   - Projects - 50% ([group] Sound design and implementation for the Project between Curricular Units of the Semester.)

Language of instruction

1. Portuguese
2. English

Electronic validation

Barbara Costa Vilas Boas Barroso, Brendan Rui Hemsworth	Ines Monteiro Barbedo de Magalhaes	Carlos Sousa Casimiro da Costa	Luisa Margarida Barata Lopes
16-01-2024	27-02-2024	27-02-2024	27-02-2024