ipb
INSTITUTO POLITÉCNICO
DE BRAGANÇA

Course Unit	Audio		Field of study	Audiovisual
Bachelor in	Game Design		School	School of Public Management, Communication and Tourism

Academic Year	2022/2023	Year of study	3	Level	1-3	ECTS credits	6.0
Type	Semestral	Semester	1	Code	8309-414-3102-00-22		

Workload (hours)	162	Contact hours	T	-	TP	45	PL	15	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)	Jose Ferreira Machado

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, multimedia and games;
3. Recognize and create different sound formats ;
4. Understand physical and psychological sound perception and to produce sound accordingly;
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 classify different basic typologies of musical evolution;
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 program will comprehend: physical dimensions of sound, sound propagation and space acoustics; audition, voice and speech techniques for actors; instrument acoustics, musical terminology and conventions, musical styles and periods; sound treatment and digital audio operations; sound for audiovisual and multimedia; sound post-production; games and the audio workflow.

Course contents (extended version)

1. Technology, formats and functions of sound.
2. Introduction to the physical dimensions of sound:
   - Sound propagation;
   - Architectural acoustics;
   - Instrument acoustics.
3. Introduction to sound perception:
   - Human hearing;
   - Human voice;
   - Oral expression techniques and directing actors.
4. Introduction to the cultural dimensions of sound:
   - Brief overview of western music styles and periods;
   - Terminology and conventions.
5. Sound in different media: audiovisual, multimedia and games.
6. The 3 work stages:
   - Pre-production;
   - Recording / using data;
   - Post-production.
7. Sound treatment:
   - Evolution of sound recording;
   - Microphones and placement;
   - Recorders and their operation.
8. Sound in audiovisual and multimedia:
   - Overview of sound in cinema;
   - Foley vs. Sound libraries;
   - Sound design.
9. Audio for games:
   - Overview of sound in games;
   - Types of audio in games;
   - Pre-production and constraints;
   - Production and aesthetics;
   - Post-production and blending the total soundscape.

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.

Assessment methods

1. DISTRIBUTED EVALUATION (internal and mobility): - (Regular, Student Worker) (Final, Supplementary, Special)
   - Practical Work - 10% ((Single) Exercises started in class.)
   - Projects - 15% ((Single) Musical production for an existing narrative)
   - Projects - 20% ((Single) Soundscape for a static image)
   - Projects - 20% ((Group) Project between Curricular Units: Voice Acting and Score Music)
   - Projects - 25% ((Group) Project between Curricular Units: global aesthetic, sound fxs and implementation)
   - Projects - 10% ((Group) Project developed within the scope of the interdisciplinary week.)
2. STUDENT-WORKER (if without class frequency): - (Student Worker) (Final, Supplementary, Special)
   - Practical Work - 55% ((Single) Group of 3 assignments solved outside of class, but with tutorial aid.)
   - Projects - 20% ((Group) Project between Curricular Units: Voice Acting and Score Music)
   - Projects - 25% ((Group) Project between Curricular Units: global aesthetic, sound fxs and implementation)

Language of instruction

1. Portuguese
2. English

Electronic validation

Jose Ferreira Machado	Barbara Costa Vilas Boas Barroso	Carlos Sousa Casimiro da Costa	Luisa Margarida Barata Lopes
26-10-2022	28-10-2022	12-11-2022	14-11-2022