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| Course Unit | Audio Laboratory | | Field of study | Audiovisuals and Media Production | |
| Bachelor in | Multimedia | | School | School of Public Management, Communication and Tourism | |
| Academic Year | 2022/2023 | Year of study | 2 | Level | 1-2 |
| Type | Semestral | Semester | 1 | ECTS credits | 6.0 |
| Code | 9213-656-2203-00-22 | | | | |
| Workload (hours) | 162 | Contact hours | T - | TP 60 | PL - |
| | | | 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) João Pedro Dias Babo de Carvalho

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. Understand the difference between sound insulation and room absorption of sound and design acoustic panels;
3. Recognize and create different sound formats;
4. Understand physical sound principles and the human auditory system;
5. Recognize and apply the different techniques of stereo sound recording and the different microphone polar patterns and construction types;
6. Apply knowledge of audio editing and mixing and tools like: compressors, equalizers and time effects like reverberation and delay;
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:
Not applicable.

Course contents

The program will comprehend: physical dimensions of sound, sound propagation; human auditory system, voice and speaking techniques; instrument and room acoustics, musical terminology and conventions, musical styles and periods; sound treatment and digital audio operations; sound for audiovisual and multimedia, sound post-production audio editing and mixing; sound recording stereo techniques; audio mixing tools.

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.
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, radio.
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.

Recommended reading

1. Fonseca, N. (2012). Introdução à Engenharia do Som. Lisboa: FCA. ISBN: 9727227280
2. Rose, J. (2008). Audio Postproduction for Film and Video. Burlington, MA & Oxford: Focal Press. ISBN: 0240809718
3. Ribeiro, Nuno Magalhães. (2012) Multimédia e Tecnologias Interativas ISBN: 978-972-722-744-0
4. Buhler, James. (2018) Theories of the Soundtrack. Oxford University Press. ISBN: 9780199371105
5. Farnell, Andy (2010) Designing Sound: The MIT Press. ISBN-10 : 0262014416

Teaching and learning methods

Contact Hours: * Content exposition, with the aid of different sound products. * Questioning, in order to develop critical ability. * Demonstrative method, with the aid of technical equipment and sound design software. * Active method, when the student solves exercises. Non-contact Hours: * Active method, when the student does the proposed assignments.

Assessment methods

1. DISTRIBUTED EVALUATION - (Regular) (Final, Supplementary, Special)
 - Intermediate Written Test - 30% (Written test solved in the classroom during the semester.)
 - Practical Work - 60% (Group of 2 assignments solved inside and outside of class.)
 - Laboratory Work - 10% (Practical exercises solved in class.)
2. DISTRIBUTED EVALUATION FOR STUDENT WORKERS - (Student Worker) (Final, Supplementary, Special)
 - Intermediate Written Test - 40% (Written test solved in the classroom during the semester.)
 - Practical Work - 60% (Group of 2 assignments solved outside of class, with tutorial aid.)

Language of instruction

1. Portuguese
2. English

Electronic validation

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| João Pedro Dias Babo de Carvalho | Ana Lucia Jesus Pinto | Carlos Sousa Casimiro da Costa | Luisa Margarida Barata Lopes |
| 17-10-2022 | 18-10-2022 | 18-10-2022 | 30-10-2022 |