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840072 - ESPAIS - Acoustic Spaces

Coordinating unit: 840 - EUPMT - Mataró College of Engineering
Teaching unit: 840 - EUPMT - Mataró College of Engineering
Academic year: 2013
Degree: DEGREE IN AUDIOVISUAL MEDIA (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6 Teaching languages: Catalan

Teaching staff

Coordinator: JOAN L. ALTABELLA VIVES

Degree competences to which the subject contributes

Specific:

1. CEA11: To know, understand and apply music rules and languages for music creation and sound registration in music production and the development of electronic music to be used in audiovisual productions.
2. CEA9: To know, understand and apply the mechanical, electronic and digital principles of capture, amplifying and registration of sound for its application to different platforms: shows, radio, TV, audiovisual and multimedia.ó, amplificació i registre del so per a la seva aplicació en les diverses plataformes: espectacle, ràdio, televisió, audiovisual i multimedia.

Generical:

3. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Teaching methodology

Lectures of theory and experimentation in different acoustic places and laboratory.

Learning objectives of the subject

This course studies the acoustic behaviour of rooms and the corrections necessary to adapt the room to the acoustics sound needs.

Study load

Total learning time: 150h	Theory classes:	40h	26.67%
	Practical classes:	0h	0.00%
	Laboratory classes:	12h	8.00%
	Guided study:	8h	5.33%
	Self study:	90h	60.00%

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Content

1. Sound and noise

Learning time: 10h
Theory classes: 5h
Self study : 5h

Description:
Conceptual and experimental definition of the sound and the noise. General criteria on hearing processes.

2. The measurement of sound.

Learning time: 16h
Theory classes: 6h
Practical classes: 4h
Self study : 6h

Description:
Description of sound Physics and definition of measurement methods and parameters used.

3. Sound level meters.

Learning time: 6h
Theory classes: 3h
Self study : 3h

Description:
Study of sound measuring equipment and its operation.

4. The reverberant field.

Learning time: 12h
Theory classes: 4h
Practical classes: 4h
Self study : 4h

Description:
Study of sound reflections inside a room. Parameters for characterization of the reverberant field.

5. Absorbent materials.

Learning time: 10h
Theory classes: 5h
Self study : 5h

Description:
Analysis of the different types of materials used to modify the reverberant field of a room.

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6. Isolation.	Learning time: 10h Theory classes: 3h Practical classes: 4h Self study : 3h

Description:
Isolation concept. Studying the behavior of the building elements with respect to sound isolation.

7. Insulating materials.	Learning time: 6h Theory classes: 3h Self study : 3h

Description:
Analysis of the different types of materials used to insulate acoustically a room.

8. Geometry of rooms.	Learning time: 6h Theory classes: 3h Self study : 3h

Description:
Study room geometries used to improve acoustic response.

9. Preparing a room acoustically.	Learning time: 7h Theory classes: 3h Self study : 4h

Description:
Description of the methods used to prepare a room acoustically.

10. The vibrations.	Learning time: 9h Theory classes: 3h Self study : 6h

Description:
nvestigation of the vibrations, its spread and the different methods used to eliminate them.

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11. Acoustics legislation.	Learning time: 7h Theory classes: 3h Self study : 4h

Description:
Study of the different laws and international regulations governing the sound and noise.

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Planning of activities

1. URBAN ACOUSTIC SCENARIOS.	Hours: 1h Theory classes: 1h
Description: Recording and measurement of an outdoor soundstage and subsequent analysis and synthesis stage.	

2. PARTIAL EXAM.	Hours: 10h Theory classes: 5h Self study: 5h
Description: Performing a partial examination topic at the end of the absorbent materials chapter. This exam can eliminate themes from the final exam.	

3. ACOUSTIC SCENARIOS INSIDE ROOMS.	Hours: 12h Theory classes: 6h Self study: 6h
Description: Study of different indoor and reverberation time measurement, with subsequent analysis of the measurements obtained.	

4. MEASURES OF INSULATION BETWEEN ROOMS.	Hours: 7h Practical classes: 4h Self study: 3h
Description: Performing a measurement of isolation between rooms according to ISO 140-4. Measurement of structural vibration transmission.	

5. FINAL EXAM	Hours: 6h Theory classes: 3h Self study: 3h

Qualification system

Half-semester partial exam releasing themes.
Final exam.
Reviewing the dossiers of practices.
The exams account for 80% of the grade and practices 20%

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Bibliography

Basic:

M. David Egan. Arquitectural Acoustics. McGraw-Hill Publishing Company,

Complementary:

Higini Arau. ABC de la Acústica arquitectónica. CEAC,