

Course/Subject/Unit Description

1. General Information			
SCHOOL		School of Design Sciences	
DEPARTMENT		Interior Architecture	
STUDY LEVEL		Undergraduate	
CODE OF SUBJECT	EA615	SEMESTER	6
SUBJECT TITLE		Room Acoustics	
TEACHING CONTENT	Weekly (Hrs)	Credits	
Lectures, Essays, Design Workshops/Excercises, Design Project – Portfolio of work.	3	3	
TYPE OF SUBJECT		Compulsory Optional	
PREREQUIRED COURSES		No	
TEACHING AND EXAMS LANGUAGE		Greek	
THE COURSE IS OFFERED TO ERASMUS STUDENTS		Yes	
Course website (URL)		https://ia.ihu.gr/ea615/	

2. Aims and Objectives – Methods – Skills
<i>α. Learning Outcomes</i>
<p>The course of Indoor Acoustics (related term: architectural acoustics) aims to raise awareness and familiarize students with acoustic design problems in rooms with special requirements. It indicates the importance of sound as a key feature of space that affects spatial architectural design and conception. The course consists of both theoretical and laboratory content related to architectural acoustics. Upon successful completion the student:</p> <ul style="list-style-type: none"> • is familiar with acoustic design problems in rooms with special requirements • develops awareness in acoustic design issues that directly affect spatial planning and the process of architectural concept • can design or correct the acoustics of spaces • knows the principles of geometric acoustics and sound propagation and analysis • is familiar with the acoustic parametres of measurement and evaluation in order to evaluate the architectural acoustic quality of a space • imports digital models to specialized acoustic software for the purpose of acoustic simulation (ray calculation, acoustic parameters).
<i>β. Skills</i>
<ul style="list-style-type: none"> • Knowledge of the basics in geometry & algebra • Geometric design • Digital Design • Personal assignment • Spatial perception • Application of theoretical knowledge in practice

3. Subject Context

Indoor Acoustics (related term: architectural acoustics) aims to raise awareness and familiarize students with the principles of acoustic design in rooms with special requirements (theatre, multipurpose hall, concert hall, training hall, etc.).

The theoretical part of the course examines the importance of sound as a key feature of space, affecting spatial design, involving a historic overview of acoustic design, introduction to the theory of sound, acoustic phenomena, acoustic comfort, basic acoustic indices, sightline design, image-source method etc.

The laboratory part is related to small exercises regarding the theory of sound, sound propagation, reflection etc., the concept stage of architectural/ acoustic design based on the principles of geometric acoustics, as well as to the measurement and calculation of basic acoustic indices.

The course involves the design of a small-scale space, purposely built for oral performances (theatre, auditorium), in terms of the architectural concept, the calculation of optimum acoustic parameters, the use of acoustic software design and the appropriate material use and application.

4. Teaching and learning methods – Evaluation and assessment

<ul style="list-style-type: none"> - Theory and Design Workshops – Main Project Brief/ Site visits - Group Appraisal /Site Analysis - Theory Essay and Design Exercises - Interim Reviews - Project Final Pin Up - Portfolio Hand In. 	<p>The module combines teaching and learning methods described in this section, allowing for a comprehensive approach that integrates theory and design.</p>															
<p>Use of Information and Communication Technologies</p>	<p>Powerpoint presentations & video projections, use of CAAD, online research.</p>															
<p>Teaching organization</p>	<table border="1"> <thead> <tr> <th>Activity</th> <th>Semester Credits</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>20</td> </tr> <tr> <td>Theory Essay</td> <td>10</td> </tr> <tr> <td>Design Workshop and Exercises</td> <td>20</td> </tr> <tr> <td>Main Design Project</td> <td>40</td> </tr> <tr> <td>Research and Analysis of Bibliography</td> <td>10</td> </tr> <tr> <td>Total</td> <td>100</td> </tr> </tbody> </table>	Activity	Semester Credits	Lectures	20	Theory Essay	10	Design Workshop and Exercises	20	Main Design Project	40	Research and Analysis of Bibliography	10	Total	100	
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<p><i>Student assessment</i></p>	<p>Exercises & Precedent Presentation</p>															

	Design Project Portfolio assessment
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5. Recommended/ Bibliography

Beranek, L. (1996) Concert and opera halls: How they sound. Acoustical Society of America.

Efthimiatis, D. (2007) Acoustics and construction applications. Athens, Papasotiriou Publications.

Everest A. F., (1998), The master handbook of acoustics (3rd edition). Thessaloniki, Tziola Publications.

Neufert, E. (2003) Neufert, architects' data (36th German edition 2000). Giourdas Publications [in Greek].

Skarlatos, D. (2003) Applied Acoustics. Athens, Philomatheia Publications.

Tsinikas, N. (2010) Architecture and music. Thessaloniki, University Studio Press [in Greek].

Tsinikas, N. (2018) Acoustic design of spaces (3rd edition). Thessaloniki, University Studio Press [in Greek].

Related Scientific Journals (Applied Acoustics, JASA etc).