

COURSE DESCRIPTION CARD

The name of the course/module ACOUSTICS PROJECT		Code A_K_1.6_012
Main field of study ARCHITECTURE	Educational profile (general academic, practical) general academic	Year / term III/6
Specialization -	Language of course: Polish	Course (core, elective) elective
Hours Lectures: - Classes: - Laboratory classes: - Projects/seminars: 30		Number of points 1
Level of qualification: I	Form of studies (full-time studies/part-time studies) Full-time studies and part-time studies	Educational area(s) Technical Sciences
		ECTS distribution (number and %) 1 100%
Course status in the studies' program (basic, directional, other) basic		(general academic, from a different major)
Lecturer responsible for course/lecturer: dr inż. arch. Anna Sygulska e-mail: anna.sygulska@put.poznan.pl Faculty of Architecture ul. Nieszawska 13C, 61-021 Poznań tel. 61 665 32 60		Lecturer: dr inż. arch. Anna Sygulska e-mail: anna.sygulska@put.poznan.pl Faculty of Architecture ul. Nieszawska 13C, 61-021 Poznań tel. 61 665 32 60
Prerequisites defined in terms of knowledge, skills, social competences:		
1	Knowledge:	- basic knowledge of physics on the secondary school level - basic knowledge of architectural designing and urban planning - basic knowledge of history of architecture
2	Skills:	- student is able to use available Polish and English publications - student has basic skills of architectural designing and urban planning
3	Social competences:	- is aware of the need for learning in the fields of science related to architecture - is able to creatively co-operate in the group
Objective of the course: - Obtaining the ability to adaptation of premises in terms of acoustics with parallel artistic designing interior architecture - Obtaining the ability to designing interiors with non-qualified acoustic - Becomes familiar students with methods of measurement and calculation of reverberation time - Becomes familiar students with issues of soundproofing protection according to existing norm		
Learning outcomes		
Knowledge:		
W01	student has basic knowledge in the understanding of social, economic, legal and other determinants outside the engineering activity and has basic knowledge of quality management	AU1_W03
W02	student has proper knowledge in the field of mathematics useful for the formulation of architectural and structural designing related tasks and useful for the solutions of such tasks	AU1_W08
Skills:		
U01	student can acquire information from publications, data bases and other Polish and English sources, can interpret and integrate the said information and draw conclusions as well as voice and justify opinions	AU1_U01
U02	student can select materials of respective aesthetic properties, as well as structural and acoustic properties required for architectural designing and urban planning	AU1_U24
Social competences:		
K01	Student can work over a set task independently and can cooperate in a team, assuming a number of different roles therein; demonstrates responsibility in	AU1_K01

	the work performance		
K02	Student is aware of the importance of non-technical aspects and effects of engineering activities, in this impact upon the environment and liability for environment affecting decisions	AU1_K05	
The evaluation methods:			
The basis to credit is development of written and design individual topic.			
Summative assessment:			
There is assessed written and design work and active participation in classes.			
Final grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.			
Positive grade for module depends on achieved by student all learning outcomes specified in the syllabus.			
Course contents			
<ul style="list-style-type: none"> - Introduction to the course, discussion of current issues of subject. - Selection of individual topic of term project for each student. - Becomes familiar students with calculation methods of reverberation time. - Field training consisting in measurement of reverberation time in premises with various acoustic properties. - Premises with non-qualified acoustic – scope of the study. - Acoustic defects, architectural corrections according to standards of artistic and architectural designing. - Acoustic materials and their properties. Using materials with taking into account designing form and color of interior. - Building protection against external disruptions (noise, vibration). Acoustic parameters of building partitions. Requirements of noise protection according to existing norm. 			
Descriptive part (individual)			
<ul style="list-style-type: none"> • Selection of premises or facility to implementation of acoustic and architectural project of interior. Student must choose two premises with differential function of non-qualified acoustic. • Examples of acoustic solutions for premises with the same function. Student should give three examples for each function with description of adopted solutions. • Description of assumed acoustic properties, which must be fulfilled in premises with definition of required reverberation time for the function. • Calculation of reverberation time before acoustic adaptation. • Description of issues of designing premises – difficulties resulting from function of room, acoustic defects requiring correction. • Calculation of reverberation time after acoustic adaptation. 			
Design part			
Design work is individual and involves implementation of architectural and acoustic arrangement of two premises with differential function. Project should include appropriate for set function acoustic conditions with artistic designing interior. Student should present type of used materials with interior color. In project the issues of designing interior architecture and acoustic requirements must be treated in the same way.			
Basic bibliography:			
<ol style="list-style-type: none"> 1. Kulowski A., Akustyka sal. Wydawnictwo PG. Gdańsk 2007 2. Wróblewska D., Kulowski A., Czynniki akustyki w architektonicznym projektowaniu kościołów. Wydawnictwo PG. Gdańsk 2007 3. Engel Z., Engel J., Kosała K., Sadowski J., Podstawy akustyki obiektów sakralnych. Wydawnictwo Instytutu Technologii Eksploatacji – PIB, 2007 4. Sadowski J., Akustyka architektoniczna, PWN. Warszawa 1976 5. Polska norma. Ochrona przed hałasem w budynkach – Izolacyjność akustyczna przegród w budynkach oraz izolacyjność akustyczna elementów budowlanych. PN-B-02151-3. 6. Polska norma. Pomiar czasu pogłosu pomieszczenia w powiązaniu z innymi parametrami akustycznymi. PN-EN ISO 3382 			
Supplementary bibliography:			
<ol style="list-style-type: none"> 1. Beranek L. Concert Halls and Opera Houses: Music, Acoustics and Architecture. Springer 2004, Second Edition 			
The student workload			
	Form of activity	Hours	ECTS
	Overall expenditure	31	1
	Classes requiring an individual contact with teacher	15	-
	Practical classes	16	-

Balance the workload of the average student

Form of activity	Number of hours
participation in lectures	-
participation in classes/ laboratory classes (projects)	30 h
preparation for classes/ laboratory classes	-
preparation to colloquium	-
participation in consultation related to realization of learning process	1 x 1 h = 1 h
preparation to the exam/colloquium	-
attendance at exam/ colloquium	-

Overall expenditure of student:

1 ECTS credit**31 h**

As part of this specified student workload

- activities that require direct participation of teachers:
30 h + 1 h = **31 h**