

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Physics of Buildings		Code 1010115111010110025
Field of study Civil Engineering Extramural Second-cycle	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty Structural Engineering	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 20 Classes: 10 Laboratory: - Project/seminars: -		No. of credits 6
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 6 100%
Responsible for subject / lecturer: DSc. Eng. Barbara Ksit email: email: barbara.ksit@put.poznan.pl tel. tel. 48 61 6652864 Civil and Environmental Engineering Piotrowo 5, 60-965 Poznań		Responsible for subject / lecturer: DSc. Eng. Marlena Kucz email: email: marlena.kucz@put.poznan.pl tel. tel 48 61 6653358 Civil and Environmental Engineering Piotrowo 5, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	knowledge after first cycle studies after the civil engineering course or other technical studies
2	Skills	Student can design a construction barrier (e.g.wall, roof) due to thermals condition and taking into account the moisture conditions
3	Social competencies	Awareness of the need to constantly update and supplement knowledge construction and engineering skills
Assumptions and objectives of the course: -Assumptions and objectives of the course: Widening and deepening knowledge of building physics: thermodynamics and hygrometry, acoustics, lighting and passive. Acquaintance with physics building. Acquaintance with rules governing design of energy efficient houses. Ability to calculate a heat transfer coefficient for different barrier. Basic knowledge about a passive houses. Deepen their knowledge of building physics and acoustics.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. She/He knows rules about transparent barrier, knows rules about calculation - [K_W02,K_W03,K_W04,K_W07]		
2. She/He knows the basic principles (heat transfer) working compartments containing a of air layer - [K_W02,K_W03,K_W04,K_W07]		
3. She/He knows the general and the technical requirements for design of building and envelope in terms of protection against noise - [K_W02,K_W03,K_W04,K_W07]		
4. She/He knows the solutions and requirements for passive and zero energy building - [K_W02,K_W03,K_W04,K_W07]		
Skills:		
1. She/He can classify buildings in terms of thermal condition - [K_U01, K_U018, K_U05]		
2. She/He can describe and analyse the causes of the problems of acoustic and lighting in the building - [K_U01,K_U018,K_U05]		
3. She/He can design a barrier taking into account an acoustic effect and with airflow ventilation - [K_U01,K_U018,K_U05]		
Social competencies:		
1. She/He is acquires the ability to work in a team - [K_U16, K_K05K_K01]		
2. She/He is able to set priorities for the implementation of specific actions - [K_U16, K_K05K_K01]		

Assessment methods of study outcomes		
<p>-Assessment of knowledge: activity during classes and a lectures. Points might be earned for: the activity during the classes, knowledge presented during the exam. The grading scale determined% from: 90 very good (A) 85 good plus (B) 75 Good (C) 65 Adequate plus (D) 55 Sufficient 55 (E) Less than 54 inadequate (F)</p>		
Course description		
<p>-Lecture: transparent barrier, building protection from the noise (acoustic problem), factors affecting the lighting of the building, knowledge of energy-efficient, passive and zero-energy building , knowledge of Renewable energy sources (sun, biomass) Classes: Determination of the ventilation in the flat roof , calculation of heat loss for building, sound issues (acoustic problem) in building construction, calculation of the heat transfer coefficient with including thermal bridges</p>		
<p>Basic bibliography: 1. Praca zbiorowa pod kier. P .Klemma: Budownictwo ogólne t.2 wyd. Arkady 2005 2. aktualne normy(PN-EN ISO 6946:2008, DIN 4108 cz.3, PN-B-02151-03:1999,PN-EN 12464: 2002 ...) 3. Rozporządzenie Ministra Infrastruktury z 12 kwietnia 2002 w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie. (Dz. U. nr 75 z 15 czerwca 2002r., poz.690 wersja:2009.07.08 lub późniejsze oraz z 2003 r. Nr 33, poz. 270) 4. Błaszczyczyński T., Ksit B., Dyzman B., Budownictwo zrównoważone z elementami certyfikacji energetycznej, 2012</p>		
<p>Additional bibliography: 1. Instrukcja ITB nr 406: Metody obliczania izolacyjności akustycznej między pomieszczeniami w budynku według PN-EN 12354-1:2002 i PN-EN 12354-2:2002 2. Instrukcja ITB nr 293: Projektowanie pod względem akustycznym przegród w budynkach 3. Praca zbiorowa pod redakcją Adama Lisika: „Odnawialne źródła energii w architekturze?”. Wydawnictwo Politechniki Śląskiej, Gliwice 2002</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. 1 Preparing to pass the lecture	10	
2. Participation for lectures	20	
3. Prepare for classes	5	
4. Participation in classes	10	
5. Complete calculation in home	10	
6. Preparing to pass the exam	5	
7. Participation in the consultation (minimum three consultations)	3	
Student's workload		
Source of workload	hours	ECTS
Total workload	63	6
Contact hours	33	1
Practical activities	10	1