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 **Construction Engineering and Management**	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		ECTS distribution (number and %)

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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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:

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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 is knows rules about transparent barrier, knows rules about calculation - [K_W02,K_W03,K_W04,K_W07]]
2. She/He is knows the basic principles (heat transfer) working compartments containing a of air layer - [K_W02,K_W03,K_W04,K_W07]
3. She/He is 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 is 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

-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)

Course description

-Lecture:

transparent barier, 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

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)

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.

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