

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Physics of Buildings</b>		Code <b>1010104151010110025</b>
Field of study <b>Civil Engineering First-cycle Studies</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 5</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>10</b> Classes: <b>10</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>2</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b>		ECTS distribution (number and %) <b>2 100%</b>
<b>Responsible for subject / lecturer:</b> Barbara Ksit email: barbara.ksit@ikb.poznan.pl tel. 48 61 6653358 Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań		<b>Responsible for subject / lecturer:</b> Dariusz Janiszewski email: darek_j1@onet.eu tel. 48 61 6653358 Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge of building materials, construction, physics and basic methods of mathematical analysis
2	<b>Skills</b>	Students can: use-programs Excel (basic features) identify and describe building materials and their basic physical characteristics, can provide a layer of individual partitions, understands the basic laws governing the flow of heat
3	<b>Social competencies</b>	Awareness of the need to constantly update and supplement knowledge construction and engineering skills. Understand the need for lifelong learning and knows how to interact and work in a group, taking the different roles.
<b>Assumptions and objectives of the course:</b> -Extending and deepening the knowledge of thermodynamics and hygrometry, to the course is to familiarize students with the methods of calculation of thermal and moisture barriers, and building research methods and termorenowacyjnymi, damp-proofing, drying buildings and restore the insulation.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. She/He knows and understand the work of a thermal barrier, knows the method of calculation - - [[K_W02, K_W03, K_W04, K_W07]]		
2. She/He knows the research methods restoration, protection against moisture, drying buildings and restore the insulation. - - [ [K_W02, K_W03, K_W04, K_W07]]		
3. She/He knows the basic principles of heat transfer, ventilation of the building, - - [[K_W02, K_W03, K_W04, K_W07] ]		
4. She/He knows matriely and methods termorenowacyjjne partitions - [[K_W02,K_W03,K_W04,K_W07]]		
<b>Skills:</b>		
1. She/He can design a barrier (wall, roof etc) and calculate heat transfer coefficient - - [[K_U01, K_U018, K_U05]]		
2. She/He can choose the method of thermal renovation and waterproofing - - [[K_U01, K_U018, K_U05]]		
3. She/He can describe the phenomenon and analyze the causes of problems in the building mycological - - [ [K_U01, K_U018, K_U05]]		
<b>Social competencies:</b>		
1. She/He is able to set priorities for the implementation of specific actions, - - [ [K_U16, K_K05K_K01]]		
2. She/He is acquires the ability to work in a team, - - [[K_U16, K_K05K_K01]]		
<b>Assessment methods of study outcomes</b>		

<p>-Assessment of knowledge: activity during classes and a lectures.                  Points might be earned for:                      the activity during the classes,                      knowledge presented during the colloquium                  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>		
<b>Course description</b>		
<p>-Lectures                  Fundamentals knowledge of heat transfer. Hygrothermal properties of materials construction. Calculation of thermal barriers. Calculation of thermal barriers with thermal bridges. flow Issues heat, thermal stability partitions. Causes and types which moisture in building, diffusion and condensation. Principles of design and performing divisions that meet the standard requirements for thermal protection and humidity of the building.                  Exercises:                  calculation of heat transfer coefficients for different partitions. Determination of co fRsi for the selected partition</p>		
<p><b>Basic bibliography:</b>                  1. Praca zbiorowa pod kier. P .Klemma: Budownictwo ogólne t.2 wyd. Arkady 2005                  2. Płoński, Pogorzelski : Fizyka budowli Arkady 1976                  3. aktualne normy(PN-EN ISO 6946:2008,PN-EN ISO 13370, PN-EN ISO 10211-1:1998,PN-EN ISO 13788:2003 )                  4. 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)</p>		
<p><b>Additional bibliography:</b>                  1. B.Ksit,B.Monczyński: Zabezpieczenie elementów budynku znajdujących się w gruncie. Izolacje przeciwwilgociowe i przeciwwodne.Verlag Daschofer sp.z o.o.2011                  2. B.Ksit,B.Monczyński: Izolacje przeciwwilgociowe i przeciwwodne dachów płaskich i tarasów. Verlag Daschofer sp.z o.o.2012                  3. T.Błaszczński, B. Ksit, B. Dyzman: Budownictwo zrównoważone z elementami certyfikacji energetycznej. Dolnośląskie Wydawnictwo Edukacyjne, 2012                  4. J.Jasiczak, M. Kuński, M. Siewczyńska - Obliczanie izolacyjności termicznej i nośność murowanych ścian zewnętrznych. Wyd. Politechniki Poznańskiej                  5. Hydroizolacje w budownictwie, Maciej Rokieli 2005                  6. Nowoczesne wyposażenie domu jednorodzinnego, praca zbiorowa pod red. prof. dr hab. inż. Halina Koczyk, PWRiL Poznań</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>		<b>Time (working hours)</b>
1. Preparing to pass the lecture		14
2. Participation in lectures		10
3. Prepare for Training		5
4. Participation in cw. auditorium		10
5. Complete in house calculation of cw. auditorium		3
6. Preparing to pass the end of cw. auditorium		10
7. Participation in the consultation (we assume that the student uses the three consultations)		3
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	55	2
Contact hours	23	1
Practical activities	10	1