

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Construction Materials		Code 1010101121010100054
Field of study Sustainable Building Engineering First-cycle	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - Laboratory: 15 Project/seminars: -		No. of credits 2
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 %) 2 100%
Responsible for subject / lecturer: dr inż. Agnieszka Ślosarczyk email: agnieszka.slosarczyk@put.poznan.pl tel. 616652166 Wydział Budownictwa i Inżynierii Środowiska ul. Piotrowo 5 60-965 Poznań		Responsible for subject / lecturer: mgr inż. Maria Ratajczak email: maria.ratajczak@put.poznan.pl tel. 616652165 Wydział Budownictwa i Inżynierii Środowiska ul. Piotrowo 5 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of the following subjects: mathematic, physics, chemistry.
2	Skills	Ability to obtain information from literature and other sources. Capability to combine obtained information.
3	Social competencies	Awareness of the necessity for constant updating and complementing one's knowledge and skills.
Assumptions and objectives of the course: To gain the engineering knowledge regarding proper selection and assessment of building materials quality and usefulness both in the phase of design and on-site application.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student knows basic principles of material technologies and construction elements - [KSB_W01] 2. Student knows and understands the theoretical bases of the physical and mechanical in construction materials during its producing and exploitation. - [KSB_W01]		
Skills:		
1. Based on the gain knowledge student is able to characterize the physical and mechanical properties of construction materials. - [KSB_U01] 2. Student is able to adequately choose types of building materials with reference to their practical application. - [KSB_U08]		
Social competencies:		
1. Student is able to indicate the aims during realisation of task in group, taking into account e.g. in the social interest - [KSB_K01] 2. The student has the ability to plan team work, to divide tasks among the members of the research team, to critically discuss the results and formulate collaborative conclusions (conclusions based on the team work) - [KSB_K02]		
Assessment methods of study outcomes		

<p>Lectures</p> <p>The colloquium in the last lecture - the date given at the beginning of the semester. Colloquium in the form of open and closed questions meant to check the knowledge of basic physicomechanical properties of building materials.</p> <p>Laboratory classes</p> <p>A short verbal test at the beginning of the class. A colloquium at the end of the semester covering the material of the laboratory classes.</p> <p>Grade scale:</p> <p>100-90% of the maximum possible points - 5.0 90-80% of the maximum possible points - 4.5 80-70% of the maximum possible points - 4.0 70-60% of the maximum possible points - 3.5 60-50% of the maximum possible points - 3.0</p>		
Course description		
<p>Lecture</p> <p>Basic information on the standardization of construction materials. Technical characteristics of building materials. General classification of building materials. Test methods. Durability of building materials. Stone materials. Aggregates (light, normal and heavy). Building ceramics/tiles. Wood. Biological corrosion of wood. Bitumens and waterproofing materials. Heat-insulation and sound-deadening materials. Metals. Binding materials. Common and special cement types, lime, gypsum. Basic information about plastics. Building glass. Attestation and control of the quality of building materials. Mortars. Preliminary information on designing concrete mixes.</p> <p>Laboratory classes</p> <p>Testing binders (the right amount of water in the cement paste, binding time, preparation of cement samples and determining the actual cement strength class after 28 days of curing, testing surface area), Study of natural and crushed aggregates (sieve analysis, bulk density in loose and compact state, shape indicator, content of dust). Testing ceramics (external characteristics, determining the strength class, basic disadvantages, testing flexural strength of tiles), Study of membranes (modified and oxidised), tensile strength, elongation at break, testing oxidised and modified bitumens (penetration, softening point). Testing plastics and rubber (flame analysis of plastics, determination of hardness, testing thickness of coatings/ paint, rubber abrasion).</p>		
<p>Basic bibliography:</p> <p>1. Mamlouk Zaniewski, Materials for Civil and Construction Engineers, Third Edition</p>		
<p>Additional bibliography:</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in the lectures	30	
2. Participation in the laboratory classes	15	
3. Preparation to the laboratory classes	10	
4. Preparation to the colloquium at the laboratory classes	5	
5. Preparation to the colloquium at the laboratory classes	15	
Student's workload		
Source of workload	hours	ECTS
Total workload	75	2
Contact hours	45	1
Practical activities	15	1