STUDY MODULE DESCRIPTION FORM Name of the module/subject Code Underground Structures 1010101161010120210 Field of study Profile of study (general academic, practical) general academic, practical) Year /Semester Civil Engineering First-cycle Studies Subject offered in: Polish Course (compulsory, elective) Cycle of study: - Polish Course (compulsory, elective) Cycle of study: First-cycle studies full-time No. of nours No. of credits 2 Lecture: 15 Classes: - Laboratory: Project/seminars: 15 2 Status of the course in the study program (Basic, major, other) (university-wide, from another field) Mo. of credits Education areas and fields of science and at ECTS distribution (number and %) 2 100% 2 100% Responsible for subject / lecturer: Wojciech. Siekierski@put.poznan.pl Lecture: Strength of materials, structural mechanics, geotechnics Underge Strength of materials, structural mechanics, geotechnics 2 Strength of materials, structural mechanics, geotechnics			
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Knowledge Strength of materials, structural mechanics, geotechnics Basic static-strength computation of building structures.			
2 Skills Basic static-strength computation of building structures.			
3 Social Honesty, responsibility			
Assumptions and objectives of the course:			
The aim of the subject is presentation of basic problems of design, construction and building of underground structures.			
Study outcomes and reference to the educational results for a field of study			
Knowledge:			
1. Factors of tunnel building [K_W08, K_W09]			
2. Construction of tunnels - [K_W09]			
3. Tunnel loadings - [K_W10]			
Skills: 1. Static computations of tunnels - [K_U02, K_U03]			
2. Design of tunnel members - [K_U04, K_U08]			
Social competencies:			
1. Honesty - [K_K02]			
2. Self-reliance - [K_K01]			

Assessment methods of study outcomes

Lecture: written colloquium.

Design exercises: submission of correctly completed exercise and oral check of knowledge in concern.

Course description

Definitions. Classification of underground structures. Initial design of tunnels structural elements and construction. Loads and static com Shallow founded tunnels building methods.		
Basic bibliography:		
Additional bibliography:		
Result of average stud	dent's workload	
Activity		Time (working hours)
Student's wo	rkload	I
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	35	1
Practical activities	20	1