Name of		STUDY MODULE DE	ESCRIPTION FORM			
	f the module/subject ngth of Materials	5	Code 1011101231011000134			
Field of study			Profile of study	Year /Semester		
Safety Engineering - Full-time studies - First-			(general academic, practical) (brak)	2/3		
Elective path/specialty			Subject offered in: Polish	Course (compulsory, elective) obligatory		
Cycle of study:			Form of study (full-time,part-time)	j,		
	First-cv	le studies	full-time			
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No. of he		45		No. of credits		
Lectur	014000	· · · · · · · · · · · · · · · · · · ·	Project/seminars:	-		
Status o	of the course in the study	program (Basic, major, other) (brak)	(university-wide, from another fi	^{ela)}		
(DTAK) Education areas and fields of science and art				ECTS distribution (number and %)		
prof. ema tel. 6 Facu	onsible for subje dr hab. inż. Marian C iil: marian.ostwald@p 51 665 2176 ulty of Mechanical Eng Piotrowo 3, 60-965 Po	Dstwald ut.poznan.pl gineering and management				
	,	s of knowledge, skills and	I social competencies:			
1	Knowledge	Basic knowledge of mathematics, mechanics and technical drawing.				
_	Skills	Ability of solving mathematical problems. Ability of searching information from different sources and using literature related to field of studies. Ability of systemic understanding of technical reality. Abilities of identifying technical problems, conducting analysis and reaching correct conclusions.				
2	OKIIIS	and using literature related to fiel reality. Abilities of identifying tech	d of studies. Ability of systemic	understanding of technical		
2 3	Social competencies	and using literature related to fiel reality. Abilities of identifying tech	d of studies. Ability of systemic inical problems, conducting an er?s activity, responsibilities for	understanding of technical alysis and reaching correct r decisions and consequences.		
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1. Understanding of systemic approach to engineering. - [K1A_K02]

- 2. Understanding of social and non-technical impact of engineering activities. [K1A_K02]
- 3. Understanding of engineer?s responsibilities and its influence on safety and reliability of structures. [K1A_K03, K1A_K04]

4. Ability to make correct decisions and anticipating their consequences. - $[{\rm K1A}_{\rm K03}]$

Assessment methods of study outcomes

The credit for laboratories: verification of preparations to classes.

The credit for problem solving classes: written tests.

The credit for lecture: written test covering understanding of basic terms and ability to solve a simply example.

Course description

Introduction to statics of rigid bodies. Conditions of equilibrium. Introduction to key topics related to strength of materials. Analysis of states of stresses and strains. Stress-Strain diagrams and their significance. Strength conditions and their applications, conditions of deformation. Calculation procedures for bar structures, circular cross-section shafts and straight beams (internal forces diagrams, stresses, deflections). Calculations of statically indeterminate structures. Analysis of combined stresses of statically determinate structures. Economic aspects of the strength calculations. Safety and reliability of structures. Selected problems ? fatigue of metals, buckling of structures, experimental methods, optimal design of structures.

Students should be able to learn the basic theoretical knowledge and possess skills for solving practical engineering problems and perform simple strength experiments: tensile test, hardness teste, fatique of material, strain gauge test.

Basic bibliography:

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)				
1. Lectures	30				
2. Problem solving classes	15				
3. Laboratories	15				
4. Preparations to laboratory experiments	12				
5. Reports from laboratory experiments	10				
6. Preparations to written tests		20			
7. Preparations to written test of lecturer?s presentation		20			
8. Consultations with lecturers		3			
Student's workload					
Source of workload	hours	ECTS			
Total workload	125	4			
Contact hours	62	3			
Practical activities	62	2			