



COURSE SPECIFICATION

Course code	full-time:	B1-5-510a
	part-time:	BN1-7-705a
Course title in Polish	Wybrane aspekty wytrzymałości materiałów konstrukcyjnych	
Course title in English	Strength of Materials: Selected Issues	
Valid from academic year	2023/2024	

CURRICULAR ALIGNMENT

Programme	CIVIL ENGINEERING
Level	first-cycle
Programme profile	academic
Mode of attendance	full-time; part-time
Specialism	all
Academic unit responsible for the course	Department of Theory of Structures and BIM
Course coordinator	dr inż. Wiktor Wciślik
Approved by	prof. dr hab. inż. Grzegorz Świt

COURSE DESCRIPTION

Teaching block	major	
Course status	elective	
Language of instruction	English	
Semester of delivery	full-time	semester V
	part-time	semester VII
Prerequisites	English 1,2,3,4; Strength of Materials 1,2	
Exam (YES/NO)	NO	
ECTS	2	

Mode of teaching		lecture	class	lab	project	other
Number of hours per semester	full-time:	15				
	part-time:	10				

LEARNING OUTCOMES

Category	Code	Learning outcomes	Corresponding programme outcome code
Knowledge	W01	Students know the basic vocabulary in the field of the strength of materials.	B1_W06
Skills	U01	Students are able to use specialized technical English vocabulary to a basic degree.	B1_U28 B1_U29
Competence	K01	Students demonstrate the ability to work individually and in teams.	B1_K01
	K02	Students are responsible for the integrity of the work performed.	B1_K02

COURSE CONTENT

Teaching mode	Topics covered
lecture	Equilibrium of a deformable body, calculation of reactions, free body diagram.
	Calculation of the resultant force and moment acting within the body, force and moment diagrams.
	Geometric properties of an area, stress calculation in the case of simple structures (beams).
	Stress and strain (normal stress, Saint-Venant's principle, shear stress, Mohr circle, volume strain, shear strain).
	Stress-strain experiments (stress-strain diagram, characteristic points, material parameters, material behaviour during unloading).
	Stress-strain relations, Poisson's ratio, Hooke's law, Hooke's law for general stress state, Baushinger effect, material models.
	Theories of failure.

METHODS OF LEARNING OUTCOMES VERIFICATION

Learning outcome	Verification methods					
	Oral exam	Written exam	Test	Project	Report	Other
W01						X
U01						X
K01						X
K02						X

ASSESSMENT

Teaching mode	Assessment type	Criteria
lecture	mark-based	<i>Obtaining at least a passing grade based on the paper (min.3 pages) related to the content of lectures</i>

STUDENT WORKLOAD

ECTS weighting														
	Activities	Student workload										h		
		full-time					part-time							
		W	C	L	P	S	W	C	L	P	S			
1.	Scheduled contact hours	15					10							h
2.	Other (office hours, exams)	2					2							h
3.	Total number of contact hours	17					12					h		
4.	Number of ECTS credits for contact hours	0,7					0,5					ECTS		
5.	Independent study hours	33					38					h		
6.	Number of ECTS credits for independent study	1,3					1,5					ECTS		
7.	Practical hours	0					0					h		
8.	Number of ECTS credits for practical hours	0					0					ECTS		
9.	Total workload	50					50					h		
10.	ECTS credits for the course <i>1 ECTS credit =25 student learning hours</i>	2												

READING LIST

1. Burns T.M.: Applied statics and strength of materials, Clifton Park: Delmar Cengage Learning, 2010.
2. Dobrociński S.: Statics and strength of materials. Part 1, Statics, Wydawnictwo Akademickie AMW, Gdynia 2019.
3. Timoshenko S., Young D. H.: Elements of strength of materials, D.Van Nostrand Company Inc., 1968.