



## Subject card

Subject name and code	BASIS OF COMPOSITE STRUCTURES OF STEEL AND CONCRETE, PG_00044254						
Field of study	Civil Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Witold Knabe				
	Teachers		dr inż. Witold Knabe  dr inż. Natalia Korcz-Konkol				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	45		5.0		50.0	100
Subject objectives	To acquire basic knowledge and skills in the design and calculation of building constructions made of steel-concrete composite members .						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] can correctly choose tools (analytical or numerical) to solve engineering problems in design of structures or construction process		The student has basic knowledge of the field of construction and the specialty of Composite Steel-Concrete Structures		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W06] knows the rules of constructing and dimensioning of building elements of: steel, reinforced concrete, wood, masonry.		The student knows the principles of designing and dimensioning elements of slabs, beams and columns of composite steel-concrete structures		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
Subject contents	Lecture - Introduction to the subject: "Composite structures". Overview of design principles for beams, slabs and composite columns calculating. Composite buildings. Execution of composite structures.  Project - implementation of a multi-storey composite building design of a frame structure, comprising: a preliminary project design, load evaluation, calculation of the static steel frame , calculation of the composite static framework (the second order theory ) and the dimensioning of a continuous composite beam and composite column.  Exercise - calculation of simple components of composite structures: beams, slabs and columns.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Lecture		60.0%		33.33%		
	project		60.0%		33.34%		
	class		60.0%		33.33%		
Recommended reading	Basic literature		1. Kucharczuk W.,Labocha S.: <i>Konstrukcje zespolone stalowo-betonowe budynków</i> . Arkady Warszawa 2007 2. EN 1994-1-1; Eurocod 4: Design of composite steel and concrete structures-Part 1-1: General rules for buildings				
	Supplementary literature		1. Bródka J. , Kozłowski A.: <i>Stalowe budynki szkieletowe</i> , OWPR 2003				
	eResources addresses		Adresy na platformie eNauczanie:				

Example issues/ example questions/ tasks being completed	<p>Draw and describe the methods of joining a steel element with a concrete slab in a composite structure</p> <p>Give the formula for the section resistance of a tubular composite column</p> <p>Draw and describe one exemplary method of determining the location of the plastic neutral axis and the cross-sectional capacity of a composite beam</p> <p>Draw a method of experimental determination of the load capacity of pin connectors</p>
Work placement	Not applicable