



Subject card

Subject name and code	Bridges, PG_00040225						
Field of study	Civil Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Railway Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Krzysztof Żółtowski					
	Teachers	dr hab. inż. Krzysztof Żółtowski dr hab. inż. Marcin Abramski mgr inż. Mikołaj Binczyk					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	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	2.0		8.0		55
Subject objectives	The aim of the course is to supplement the basic knowledge of bridge engineering and its extension. During the lectures, basic concepts and issues related to the design of the bridge crossing and shaping of communication bridge structures are discussed. The following specific topics are discussed: types of bridge structures, bridge supports, foundations, piers, abutments, concrete, reinforced concrete and prestressed spans, steel and composite spans, bridge equipment. As part of the exercises, students perform static and strength calculations of selected bridge construction issues.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_K03] can think and act creatively and enterprisingly and works for society	Is able to assess and assign different types of bridge structures to commonly established groups by assigning a static scheme and mechanical features and purpose			[SK5] Assessment of ability to solve problems that arise in practice		
	[K7_W02] knows principles of analysis, design and dimensioning of complex constructions and its elements	Encyclopedic knowledge of bridge structures.			[SW1] Assessment of factual knowledge		
Subject contents	Designing of bridge crossing, supports in bridge engineering. Small concrete, reinforced concrete and prestressed spans, cross-section shaping of beam and slab spans, prefabrication of concrete spans. Large reinforced concrete and prestressed spans, construction technology. Small steel and composite spans, shaping of the cross-section, prefabrication of steel spans, composite spans. Large steel beam spans, truss spans. Large bridges of composite construction: arched, cable stayed, ribbon, suspended. Bridge equipment: bearings, expansion joints, drainage, insulation, road surfaces and safety elements.						
Prerequisites and co-requisites	Completed course of building mechanics, material strength, metal constructions, concrete constructions						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	test and passing exercises	50.0%			100.0%		
Recommended reading	Basic literature	Fritz Leonhardt. Bridges: Aesthetics and Design					
	Supplementary literature	internet					

	eResources addresses	Adresy na platformie eNauczenie: Obiekty Mostowe 2023/2024 - Moodle ID: 33399 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33399
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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