GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Bridges, PG_00040225		
Field of study	Civil Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2022/2023
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 inż. Przemysław Kalitowski dr hab. inż. Marcin Abramski	

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, fundations, 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_W02] knows principles of analysis, design and dimensioning of complex constructions and its elements	Encyclopedic knowledge of bridge structures.	[SW1] Assessment of factual knowledge
[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

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 composit 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 eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable