



Subject card

Subject name and code	Bridges and Tunnels, PG_00065730						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2024/2025		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Engineering Structures -> Faculty Of Civil And Environmental Engineering -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		mgr inż. Maciej Malinowski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	15.0	0.0	60
	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	60		0.0		0.0	60
Subject objectives	• acquainted with basic principles of designing, shaping, calculation of bridge structures, • acquainted with basin informations of building of bridges, • acquainted with basic methods of diagnosis of brridges,						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment	Demonstrates understanding of the impact of investment on the environment and the interconnections and dependencies between the bridge structure and the natural environment	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
	[K6_W03] Demonstrate knowledge and understanding of the processes, established standards and design methods in the civil engineering subject area and of their limitations.	Demonstrates knowledge and understanding of the processes and established standards and design methods for bridge construction and is aware of their limitations	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[K6_U03] Design engineering objects and details, processes and engineering systems by applying appropriate standards and methods of design.	Designs objects and details in bridge construction, construction processes and systems, applying appropriate standards and design methods	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint	Ability to design/dimension basic structural elements of bridge structures	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
Subject contents	1. Basic information about bridges, definitions. 2. Classification of bridge structures. 3. History of bridges. 4. Catastrophes of bridges. 5. Loads and interactions. 6. Basic information about beam, plate, frame, arch, truss, suspension, cable-stayed, movable bridges and footbridges. 7. Basic information about foundation, supports and bridge equipment. 8. Bridge building technology. 9. Basic information about tunnels and culverts. 10. Diagnostics of bridge structures.		
Prerequisites and co-requisites	knowledge of structural statics and strength of materials knowledge of the basics of designing steel and concrete structures		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lectures	53.0%	50.0%
	exercises/project	60.0%	50.0%
Recommended reading	Basic literature	1. Malinowski M, Banaś A., Wasilewski B., Materiały do wykładu z Mostów i Tuneli 2. Malinowski M, Szafrński M., Sitarski A., Banaś A. Materiały pomocnicze do ćwiczeń z Mostów i Tuneli electronic version platform: eNauczanie.	

	Supplementary literature	1. Ryżyński A., Wołowicki W., Skarżewski J., Karlikowski J.: <i>Mosty stalowe</i>, PWN, Warszawa Poznań, 1984. 2. Szczygiel J.: <i>Mosty z betonu zbrojonego i sprężonego</i>. WKiŁ, Warszawa 1974 (1972). 3. Karlikowski J., Sturzbecher K.: <i>Mosty stalowe. Mosty belkowe i zespolone. Przewodnik do ćwiczeń projektowych</i> Politechnika Poznańska, Poznań, 2003. 4. Karlikowski J., Madaj A., Wołowicki W.: <i>Mostowe konstrukcje zespolone stalowo-betonowe</i>. WKiŁ, Warszawa 2007r. 5. Czudek H.: <i>Podstawy mostownictwa metalowego</i>, Politechnika Warszawska, Warszawa, 1997. 6. Hydzik J.: <i>Mosty kolejowe</i>, WKiŁ, Warszawa, 1986. 7. Danielski L.: <i>Mosty metalowe</i>, Politechnika Wrocławska, Wrocław, 1983. 8. Cholewo J., Sznurowski M.: <i>Mosty kolejowe i fundamentowanie</i>, WKiŁ, Warszawa, 1965. 9. Korelewski J.: <i>Mosty stalowe</i>, Politechnika Krakowska, Kraków, 1980. 10. Szelągowski F.: <i>Mosty metalowe</i>, WKiŁ, Warszawa, 1966. 11. Pszenicki A.: <i>Mosty stalowe nitowane</i>, Wydawnictwa Komunikacyjne, Warszawa, 1954. 12. Leonhardt F.: <i>Podstawy budowy mostów betonowych</i>. WKiŁ, Warszawa 1982. 13. Madaj A., Wołowicki W.: <i>Mosty betonowe</i>. WKiŁ, Warszawa 1998. 14. Madaj A., Wołowicki W.: <i>Budowa i utrzymanie mostów</i>. WKiŁ, Warszawa 1995. 15. Furtak K.: <i>Mosty Zespolone</i>. PWN, Warszawa 1999. 16. Siwowski T.: <i>Projektowanie mostów według Eurokodów</i>. Elamed 2016. 17. Siwowski T.: <i>Zastosowanie Eurokodów w projektowaniu mostów</i>. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016. 18. Siwowski T., Turoń B.: <i>Projektowanie mostów zespolonych według Eurokodu 4</i>. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016. 19. Karlikowski J., Madaj A., Wołowicki W.: <i>Mosty zespolone stalowo-betonowe. Zasady projektowania wg PN-EN 1994-2</i>. WKiŁ 2016. 20. Machelski Cz.: <i>Ruchome obciążenia obiektów mostowych</i>. Dolnośląskie Wydawnictwo Edukacyjne 2015.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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