



Subject card

Subject name and code		Bridges and Tunnels, PG_00048197						
Field of study		Civil Engineering						
Date of commencement of studies		October 2021	Academic year of realisation of subject			2024/2025		
Education level		first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study		Part-time studies	Mode of delivery			at the university		
Year of study		4	Language of instruction			Polish		
Semester of study		7	ECTS credits			6.0		
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		mgr inż. Maciej Malinowski				
		Teachers						
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	20.0	0.0	0.0	20.0	0.0	40
		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	40	5.0		105.0		150
Subject objectives		<ul style="list-style-type: none"> acquainted with basic principles of designing, shaping, calculation of bridge structures, acquainted with basic informations of building of bridges, acquainted with basic methods of diagnosis of bridges, 						
Learning outcomes		Course outcome	Subject outcome		Method of verification			
		[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions	can design / dimension basic structural elements in bridge construction facilities		[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_W09] knows the principles of determining of loads acting on basic constructions (e.g. general, industrial, bridge, water, marine, transport objects) and rules of its constructing	knows the rules for determining the loads on selected bridge structures and the rules of their construction		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects			
Subject contents		Subject contents Lecture: 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. Designing: Project of a beam railway bridge with an open road						

Prerequisites and co-requisites	Strength of materials.		
	Building mechanics.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	projects	80.0%	50.0%
	lectures	51.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Malinowski M, Banaś A., Wasilewski B., Materiały do wykładu z Mostów i Tuneli electronic version platform: eNauczanie.. 2. Malinowski M, Szafrński M., Materiały pomocnicze do projektowania mostów metalowych #1 electronic version platform: eNauczanie.. 	
	Supplementary literature	<ol style="list-style-type: none"> 1. Ryżyński A., Wołowicki W., Skarżewski J., Karlikowski J.: Mosty stalowe, PWN, Warszawa Poznań, 1984. 2. Szczygiel J.: Mosty z betonu zbrojonego i sprężonego. WKiŁ, Warszawa 1974 (1972). 3. Karlikowski J., Sturzbecher K.: Mosty stalowe. Mosty belkowe i zespolone. Przewodnik do ćwiczeń projektowych Politechnika Poznańska, Poznań, 2003. 4. Karlikowski J., Madaj A., Wołowicki W.: Mostowe konstrukcje zespolone stalowo-betonowe. WKiŁ, Warszawa 2007r. 5. Czudek H.: Podstawy mostownictwa metalowego, Politechnika Warszawska, Warszawa, 1997. 6. Hydzik J.: Mosty kolejowe, WKiŁ, Warszawa, 1986. 7. Danielski L.: Mosty metalowe, Politechnika Wroclawska, Wrocław, 1983. 8. Cholewo J., Sznurowski M.: Mosty kolejowe i fundamentowanie ,WKiŁ, Warszawa, 1965. 9. Korelewski J.: Mosty stalowe, Politechnika Krakowska, Kraków, 1980. 10. Szelański F.: Mosty metalowe, WKiŁ, Warszawa, 1966. 11. Pszenicki A.: Mosty stalowe nitowane, Wydawnictwa Komunikacyjne, Warszawa, 1954. 12. Leonhardt F.: Podstawy budowy mostów betonowych. WKiŁ, Warszawa 1982. 13. Madaj A., Wołowicki W.: Mosty betonowe. WKiŁ, Warszawa 1998. 14. Madaj A., Wołowicki W.: Budowa i utrzymanie mostów. WKiŁ, Warszawa 1995. 15. Furtak K.: Mosty Zespolone. PWN, Warszawa 1999. 16. Siwowski T.: Projektowanie mostów według Eurokodów. Elamed 2016. 17. Siwowski T.: Zastosowanie Eurokodów w projektowaniu mostów. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016. 18. Siwowski T., Turoń B.: Projektowanie mostów zespolonych według Eurokodu 4. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016. 19. Karlikowski J., Madaj A., Wołowicki W.: Mosty zespolone stalowo-betonowe. Zasady projektowania wg PN-EN 1994-2. WKiŁ 2016. 20. Machelski Cz.: Ruchome obciążenia obiektów mostowych. Dolnośląskie Wydawnictwo Edukacyjne 2015. 	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

Document generated electronically. Does not require a seal or signature.