



COURSE SPECIFICATION

Course code	full-time:	B1-7-M-706
	part-time:	BN1-7-M-708
Course title in Polish	Utrzymanie obiektów mostowych	
Course title in English	Bridge Maintenance	
Valid from academic year	2023/2024	

CURRICULAR ALIGNMENT

Programme	CIVIL ENGINEERING
Level	first-cycle
Programme profile	academic
Mode of attendance	full-time; part-time
Specialism	Bridge Design and Construction
Academic unit responsible for the course	Department of Strength of Materials and Building Structures
Course coordinator	prof. dr hab. inż. Grzegorz Świt
Approved by	prof. dr hab. inż. Grzegorz Świt

COURSE DESCRIPTION

Teaching block	specialism specific	
Course status	required	
Language of instruction	Polish	
Semester of delivery	full-time	semester VII
	part-time	semester VII
Prerequisites	Fundamentals of Bridge Design and Construction, Bridge Diagnostics – Basic Techniques	
Exam (YES/NO)	NO	
ECTS	3	

Mode of teaching		lecture	class	lab	project	other
Number of hours per semester	full-time:	15			30	
	part-time:	10			20	

LEARNING OUTCOMES

Category	Code	Learning outcomes	Corresponding programme outcome code
Knowledge	W01	Students are familiar with currently used building materials, manufacturing technologies, and construction technologies.	B1_W07
	W02	Students are familiar with standards and guidelines for the design and evaluation of bridges and bridge components.	B1_W14
	W03	Students demonstrate knowledge of the construction and transport infrastructure management over the full life cycle of facilities.	B1_W19
Skills	U01	Students demonstrate the ability to plan and carry out construction and transport infrastructure tests leading to the evaluation of the quality of materials used and the assessment of the strength of building structure elements.	B1_U11
	U02	Students demonstrate the ability to develop a design and prepare technical and graphic documentation in the environment of selected CAD programs.	B1_U16
	U03	Students demonstrate the ability to apply scientific principles and use scientific workshop to formulate and carry out preliminary work of a research nature leading to the solution of engineering, technological and organizational problems that occur in the construction industry.	B1_U17
Competence	K01	Students are able to work independently.	B1_K01
	K02	Students are responsible for the reliability of the results obtained.	B1_K02
	K03	Students are aware of the need for professional and personal development.	B1_K03

COURSE CONTENT

Teaching mode*	Topics covered
lecture	Condition assessment of concrete bridges (general principles).
	The National Bridge Management System in Poland.
	Inspection of bridges - types, requirements.
project	Structural defects, their inventory and evaluation, quality of concrete in the structure, identification of the type and quantity of reinforcing and prestressing steel.
	Principles of performing regular, extended and detailed inspections.
	The scope of descriptive, photographic and drawing documentation necessary for the performance of bridge inspection.
	Planning the extended inspection with detailed inspection elements for the indicated bridge structure.

METHODS OF LEARNING OUTCOMES VERIFICATION

Learning outcome	Learning outcome verification methods					
	Oral exam	Written exam	Test	Project	Report	Other
W01			X	X		
W02			X	X		
W03			X	X		
U01			X	X		
U02			X	X		
U03			X	X		
K01			X	X		
K02			X	X		
K03			X	X		

ASSESSMENT

Teaching mode*	Assessment type	Criteria
lecture	mark-based	<i>Obtaining at least 50% of points on the in-class written/oral test.</i>
project	mark-based	<i>A passing or higher grade on the project and oral defence.</i>

STUDENT WORKLOAD

ECTS weighting													
	Activities	Student workload											
		full-time					part-time						
		W	C	L	P	S	W	C	L	P	S		
1.	Scheduled contact hours	15			30		10			20			h
2.	Other (office hours, exams)	2			2		2			2			h
3.	Total number of contact hours	49					34					h	
4.	Number of ECTS credits for contact hours	2,0					1,4					ECTS	
5.	Independent study hours	26					41					h	
6.	Number of ECTS credits for independent study	1,0					1,6					ECTS	
7.	Practical hours	50					50					h	
8.	Number of ECTS credits for practical hours	2					2					ECTS	
9.	Total workload	75					75					h	
10.	ECTS credits for the course <i>1 ECTS credit =25 student learning hours</i>	3											

READING LIST

1. Siwowski T., Sobala D., Michalak E., Kulpa M., Janas L., Trojnar K., Duda A.: Projektowanie mostów wg Eurokodów, Wyd. ELAMED, 2016
2. Madaj A., Wołowicki W.: Projektowanie mostów betonowych, Wyd. Komunikacji i Łączności, 2010
3. Radomski W., Kasprzak A.: Poszerzanie mostów, PWN, 2017.
4. Madaj A., Wołowicki W. „Budowa i utrzymanie mostów. Wymagania techniczne”. WKŁ 2013.
5. Madaj A., Wołowicki W. „Podstawy projektowania budowli mostowych”. WKŁ 2012.
6. Biliszczyk J.: Mosty podwieszane. Projektowanie i realizacja, Wyd. ARKADY, 2006.
7. Biliszczyk J., Machelski Cz.: Obiekty mostowe na autostradach i drogach ekspresowych, DWE, 2009.
8. Madaj A., Wołowicki W., Karlikowski J.: Mosty zespolone stalowo-betonowe. Zasady projektowania wg PN-EN-1994-2.
9. Łucyk-Ossowska J., Radomski W.: Urządzenia dylatacyjne w mostowych obiektach dróg, WKiŁ, 2011.
10. Flaga A.: Mosty dla pieszych, WKiŁ, 2011.
11. Biliszczyk J.: Mosty wstęgowe, DWE, 2016.
12. Machelski Cz.: Modelowanie mostowych konstrukcji gruntowo-powłokowych, DWE, 2008.
13. Bień J.: Uszkodzenia i diagnostyka obiektów mostowych, WKiŁ, 2010.