

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Bridge Fittings		Code 1010102131010100224
Field of study Civil Engineering Second-cycle Studies	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty Bridges and Underground Engineering	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 15		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 2 100%
Responsible for subject / lecturer: mgr inż. Katarzyna Mossor email: katarzyna.mossor@put.poznan.pl tel. 6475836 Faculty of Civil and Environmental Engineering ul. Piotrowo 5 60-965 Poznań		Responsible for subject / lecturer: mgr inż. Katarzyna Mossor email: katarzyna.mossor@put.poznan.pl tel. 6475836 Faculty of Civil and Environmental Engineering ul. Piotrowo 5 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge concerning bridges design.
2	Skills	The ability to recognize bridge elements and to appraise their technical state, self-learning skills.
3	Social competencies	Ability to adapt the type of technical solution to the communication requirements, respect for the Polish language, understanding the need for lifelong learning and group collaboration.
Assumptions and objectives of the course: Getting to know in details subjects concerning bridges equipment, proper choice of equipment to assure bridge durability.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student knows the bridge equipment elements, their functions and requirements. - [K_W17, K_W07] 2. Student knows the current regulations concerning the design of bridge equipment. - [K_W17] 3. Student knows the current technical solutions as well as the former solutions met in existing bridges. - [K_W07]		
Skills:		
1. Student can correctly design bridge equipment elements. - [K_U03] 2. Student can recognize all of the bridge equipment elements and appraise their technical state. - [-]		
Social competencies:		
1. Student can adapt the type of technical solution to the communication requirements. - [K_K10] 2. Student can collaborate and work together in a group, is aware of the need for self-education. - [K_K01, K_K06] 3. Student complies with the principles of the Polish language and the rules of preparation of technical documentation. - [-]		
Assessment methods of study outcomes		
1. Preparation of the design exercise. 2. Ongoing monitoring of the student's knowledge on every part of preparation. 3. Oral test (talk) on completed project. 4. Written test of the student's knowledge in the field of material presented during the lectures.		

Course description		
1. Expansion joints ? types, features, application. 2. Drainage elements, the rules of design. 3. Isolations ? materials, features, application; finishes. 4. Road surfaces on bridges. 5. Antinoise screens, covers, lighting ? types, application. 6. Footpaths developments, kerbs, cornice boards ? types, application. 7. Parapets - barriers and banisters ? types, application. 8. Equipment providing the access to the bridge ? types, application; inspection facilities. 9. Elements of railway and tram bridges equipment.		
Basic bibliography: 1. Arkadiusz Madaj, Witold Wołowicki, Podstawy projektowania budowli mostowych, WKiŁ Warszawa 2003/2007. 2. Joanna Łucyk-Ossowska, Wojciech Radomski, Urządzenia dylatacyjne w mostowych obiektach drogowych, WKiŁ, Warszawa 2011. 3. Jan Marszałek, Ryszard Chmielewski, Andrzej Wolniewicz, Mosty kolejowe, Wyd. PKP, Warszawa 2010. 4. Arkadiusz Madaj, Witold Wołowicki, Budowa i utrzymanie mostów, WKiŁ, Warszawa 2007.		
Additional bibliography: 1. Józef Glomb, Wyposażenie mostów, Wyd. PŚ, Gliwice 1975. 2. Arkadiusz Madaj, Witold Wołowicki, Projektowanie mostów betonowych, WKiŁ Warszawa 2010 3. Kazimierz Furtak, Mosty zespolone, Wyd. Naukowe PWN, Warszawa 1999. 4. Leszek Janusz, Arkadiusz Madaj, Obiekty inżynierskie z blach falistych, WKiŁ, Warszawa 2007. 5. Katalog Detali Mostowych, GDDKiA Wydział Mostów, Biuro Projektowo ? Badawcze Dróg i Mostów ?Transprojekt-Warszawa?Sp.z.o., Warszawa 2002.		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in projects	15	
2. Studying	10	
3. Project realization	10	
4. Preparation to pass the project	10	
5. Preparation to the final test	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	55	2
Contact hours	15	1
Practical activities	10	1