

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Steel bridges		Code 1010104171010125139
Field of study Civil Engineering First-cycle Studies	Profile of study (general academic, practical) (brak)	Year /Semester 4 / 7
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 22 Classes: 10 Laboratory: - Project/seminars: 10		No. of credits 6
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 Technical sciences		ECTS distribution (number and %) 6 100% 6 100%
Responsible for subject / lecturer: dr inż. Krzysztof Sturzbecher email: krzysztof.sturzbecher@put.poznan.pl tel. 616475829 Institute of Civil Engineering Piotrowo 5, 60-965 Poznań		Responsible for subject / lecturer: dr inż. Wojciech Siekierski email: wojciech.siekierski@put.poznan.pl tel. 616475834 Institute of Civil Engineering Piotrowo 5, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Strength of materials and structural mechanics . Steel and concrete structures. Basic knowledge of soil mechanics and foundation engineering and roads engineering
2	Skills	The calculation of the static strength girders, basic types of connections, materials for steel structures, steel structures design standards
3	Social competencies	Awareness continuous updating of knowledge and its spread
Assumptions and objectives of the course: The acquisition of knowledge by students in terms of: knowledge of structural systems of steel bridges, materials for the construction of bridges, construction of the joints, bridges, main girders, calculations of static and strength of these elements		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Understanding the principles of shaping, construction and calculation of steel bridges for small and medium spans spans. - [-]		
2. Mastering the principles and norms of design of steel bridges - [-]		
3. Knowledge of the structure of typical connections - [-]		
4. Calculation of composite bridges - [-]		
5. Calculation of bridge decks - [-]		
Skills:		
1. The selection of the steel bridge structure depending on the location and load - [-]		
2. Construction of basic nodes and connections - [-]		
3. Calculation of basic superstructures - [-]		
Social competencies:		
1. The acquisition of knowledge by students in terms of: knowledge of structural systems of steel bridges, materials for the construction of bridges, construction of the joints, bridges, main girders, calculations of static and strength of these elements - [-]		

Assessment methods of study outcomes		
-Exam -Tests - Design exercise and current knowledge control		
Course description		
1.Parts, components and systems, static steel bridges. 2 Steel decks of the road and railway bridges. 3 Konstruktion of elements of steel bridges. Shaping the plate girder spans with steel girders encased and composite steel and concrete. 4 The loads acting on the span truss bridges 5 Static calculations plate girder spans and composite steel-concrete spans 6 Static analysis of the decks		
Basic bibliography:		
1. Arkadiusz Madaj, Witold Wołowicki: Budowa i utrzymanie mostów. Wymagania techniczne, badania, naprawy. WKŁ. Warszawa2001 2. Kazimierz Furtak, Witold Wołowicki; Rusztowania mostowe. WKŁ. Warszawa 2007 3. Leszek Janusz, Arkadiusz Madaj: Obiekty inżynierskie z blach falistych. WKŁ. Warszawa2007 4. Jan Biliszczuk: Mosty podwieszane. Projektowanie i realizacja. Arkady, Warszawa2005 5. Józef Głomb Technologia budowy mostów betonowych. WKł. Warszawa 1982 6. Ryżyński A. I inni, Mosty stalowe, PWN, Warszawa-Poznań, 1984. 7. Karlikowski J., Sturzbecher K., Mosty stalowe. Przewodnik do ćwiczeń projektowych. Wyd. Politechniki Poznańskiej, Poznań, 1993 8. Karlikowski J., Madaj A., Wołowicki W., Mostowe konstrukcje zespolone stalowo-betonowe. Wkił, Warszawa, 2010 9. Furtak K., Podstawy mostów zespolonych. Wyd. Politechniki Krakowskiej, Kraków, 1999		
Additional bibliography:		
1. Svensson,Holger.: Cable-Stayed Bridges . Ernst &#38;Sohn, Berlin 2012 2. Paul Mondorf .:Concrete Bridges.: CRC Press (September 14, 2006) 3. W.F. Chen Lian Duan: Bridge Engineering Handbook . Crc Employee. CRC Press 1999. 4. Gerhard Mehlhorn: Handbuch Bruecken. Springer-Verlag, Berlin,Heidelberg,NewYork 2010 5. Materiały z seminarium:Współczesne metody wzmacniania i przebudowy mostów. Poznań(lata 1995-2012) 6. Bowles J.E., Structural steel design, McGraw-Hill Book Company, 1980 7. Bakht B., Jaeger L.G., Bridge analysis simplified, McGraw-Hill Book Company, 1985.		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	22	
2. Participation in exercises and seminars	20	
3. Preparing exercises at home	40	
4. Exam Preparation	20	
Student's workload		
Source of workload	hours	ECTS
Total workload	102	6
Contact hours	42	4
Practical activities	10	2