

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Steel bridges | | Code 1010104171010125139 |
| Field of study Civil Engineering First-cycle Studies | Profile of study (general academic, practical) general academic | 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) major | | (university-wide, from another field) from field |
| 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 | | |
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| -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;#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 | 150 | 6 |
| Contact hours | 44 | 2 |
| Practical activities | 45 | 2 |