

| STUDY MODULE DESCRIPTION FORM | | |
|--|---|---|
| Name of the module/subject Steel Structures | | Code 1010101151010110073 |
| Field of study Civil Engineering First-cycle Studies | Profile of study (general academic, practical) (brak) | Year /Semester 3 / 5 |
| Elective path/specialty - | Subject offered in: Polish | Course (compulsory, elective) obligatory |
| Cycle of study: First-cycle studies | Form of study (full-time, part-time) full-time | |
| No. of hours Lecture: 30 Classes: 15 Laboratory: - Project/seminars: 15 | | 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 | | ECTS distribution (number and %) |
| Responsible for subject / lecturer: dr hab. inż. Maciej Szumigala prof. nadzw. email: maciej.szumigala@put.poznan.pl tel. tel. 061 665 2401 Faculty of Civil and Environmental Engineering Piotrowo 5 Street,60-965 Poznań | | Responsible for subject / lecturer: dr hab.inż. Katarzyna Rzeszut email: katarzyna.rzeszut.@put.poznan.pl tel. tel. 0616652097 Faculty of Civil and Environmental Engineering Piotrowo 5 Street,60-965 Poznań |
| Prerequisites in terms of knowledge, skills and social competencies: | | |
| 1 | Knowledge | - basic knowledge of strength of materials, structural analysis, construction materials, descriptive geometry, construction |
| 2 | Skills | - obtaining information from the standards and books - use of the computer programs which support designing |
| 3 | Social competencies | - responsibility - desire to expand knowledge |
| Assumptions and objectives of the course: Student can design simple steel elements which are tensile, compressed or bending. Student can design welding and bolted joints. | | |
| Study outcomes and reference to the educational results for a field of study | | |
| Knowledge: | | |
| 1. Know the rules of general design of construction - [K_W04] 2. Know the rules of design simple metal elements - [K_W07] | | |
| Skills: | | |
| 1. Can combine the loads of buildings - [K_U02] 2. Can design selected metal elements - [K_U07] 3. Can determine the dimension of basic structural elements - [K_U08] | | |
| Social competencies: | | |
| 1. Can work independently and in a team - [K_K01] 2. Student is responsible for the obtained results - [K_K02] | | |
| Assessment methods of study outcomes | | |

Written exam at the end of course in the summer session. Pass of exercises based on the results of two tests (welding and bolted joints). Pass a project based on the project documentation, systematic work, talk about project.

The evaluation scale:

- 91%-100% very good (A)
- 81% - 90% good plus (B)
- 71% - 80% Good (C)
- 61% - 70% is sufficient plus (D)
- 51% - 60% satisfactory (E)
- insufficient under 50% (F)

Course description

The basic information about: production technology, strength, mechanical properties of steel which is used for structural elements. The basic methods of designing metal structures. The rules of designing welding and bolted joints. The basic information about structural designing, durability of structures, loads and structural reliability.

Teaching methods

A monographic lecture with a multimedia presentation with elements of a problem-lecture lecture.

Auditorium exercises based on the method of demonstration and instruction - presentation and discussion of the computational example in part with the practical participation of students. Credit based on systematic participation in classes and a positive evaluation of the colloquium.

Design exercises - practical implementation of an engineering task. Initial discussion of the task, staged preparation of calculations and drawing documentation by students, consultation and approval of work stages, explanation by the teacher of repeated doubts by all the students. The basis for passing is systematically (confirmed entries from consultations) correctly executed project and its defense (oral or written form).

Basic bibliography:

1. PN-EN 1990 Podstawy projektowania konstrukcji
2. PN-EN 1991-1 Oddziaływania na konstrukcje
3. PN-EN 1993-1 Projektowanie konstrukcji stalowych
4. PN-EN 1990 Podstawy projektowania konstrukcji
5. PN-EN 1991-1 Oddziaływania na konstrukcje
6. PN-EN 1993-1 Projektowanie konstrukcji stalowych

Additional bibliography:

1. Kurzawa Z., Chybiński M., Projektowanie konstrukcji stalowych, Wydawnictwo PP, Poznań 2008
2. Kozłowski + zespół, Konstrukcje stalowe. Przykłady obliczeń wg PN-EN 1993-1 cz.1, cz.2., Rzeszów 2012
3. Giżejowski M., Ziółko J., Budownictwo ogólne tom 5, Arkady, Warszawa 2010
4. Goczek J. + zespół, przykłady obliczeń konstrukcji stalowych, Politechnika Łódzka 2013
5. Bródka J.+ zespół, Projektowanie i obliczanie połączeń i węzłów konstrukcji stalowych, PWT 2013
6. Kurzawa Z., Chybiński M., Projektowanie konstrukcji stalowych, Wydawnictwo PP, Poznań 2008
7. Kozłowski + zespół, Konstrukcje stalowe. Przykłady obliczeń wg PN-EN 1993-1 cz.1, cz.2., Rzeszów 2012
8. Giżejowski M., Ziółko J., Budownictwo ogólne tom 5, Arkady, Warszawa 2010
9. Goczek J. + zespół, przykłady obliczeń konstrukcji stalowych, Politechnika Łódzka 2013
10. Bródka J.+ zespół, Projektowanie i obliczanie połączeń i węzłów konstrukcji stalowych, PWT 2013

Result of average student's workload

| Activity | Time (working hours) | |
|------------------------|----------------------|------|
| 1. Lecture | 30 | |
| 2. Exercises | 15 | |
| 3. Project | 15 | |
| 4. Prepare to test | 6 | |
| 5. Calculation at home | 24 | |
| Student's workload | | |
| Source of workload | hours | ECTS |
| Total workload | 150 | 6 |
| Contact hours | 60 | 3 |
| Practical activities | 90 | 4 |

