STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Steel Structures**		Code **1010104171010111282**
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:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knows the basics of technology used in the production of steel structures and their mechanical properties. Identifies and characterizes types of welded and bolted connections and explains the calculation procedures
2	**Skills**	Used basic formulas in the field of structural mechanics and strength of materials. Able to take the appropriate design and technological solutions in the field of corrosion and fire protection. Able to propose a solution of connections using a suitable design calculation procedure
3	**Social competencies**	Able to work independently and interact in a group.

Assumptions and objectives of the course:

Acquiring knowledge about the fundamental structural elements of metal structures and familiar with the methods of designing of metal structures elements such as beams, columns, trusses.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Identifies and characterizes types of loads and their action and transmission to individual structural elements - [K1_W05]
2. Explains the basic design methods of structural steel elements in compression, tension and bending with the structural solution of the connections - [K1_W05, K1_W07]
3. Describes the design principles of roof trusses and bracing systems - [K1_W05, K1_W07]

Skills:

1. Can choose the proper type of steel cross-section to the selected structural elements - [K1_U07]
2. Able to determine the types of loads and know how they transfer into individual structural elements - [K1_U02]
3. Able to properly linked a structural element with the standard procedure of calculation and design a simple structures as floor or roof - [K1_U07]

Social competencies:

1. Understands the need for lifelong learning and improve the professional competence - [K1_K06]
2. Able to interact and work in a group on the specific task - [K1_K01]
3. Correctly identifies and resolves dilemmas related to their profession - [K1_K07]

Assessment methods of study outcomes

-evaluation of individual student projects combined with an oral defense of the thesis, content test in exercises (1 per semester - 1.5 hours)

Final exam in field of the lectures. (1 per semester - 1.5 hours)

The evaluation scale:

more than 100 excellent

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

Form of teaching: lecture

Basic information on the methods of design and dimensioning of bending, eccentric compression of metal structures elements. Bearing capacity in bending and shear. Loss of stability in bending - lateral-torsional buckling, and the loss of local stability. Designing of connections in steel structures. Head and base of the column. Nodes supporting and assembly beams. Issues truss design and simple objects framework. Form of teaching: classes

Principles of steel floor geometry, analysis of ULS and SLS in bending, compression and eccentric compression of metal structural elements.

Form of teaching: projects

The project of roof truss and bracing systems

Basic bibliography:

1. Konstrukcje metalowe cz.1 , Łubiński, Filipowicz, Żółtowski, Arkady, Warszawa, 2000
2. Połączenia śrubowe, Biegus , Wyd. PWN, Warszawa, 1997
3. Tablice do projektowania konstrukcji metalowych, Bogucki, Żyburtowicz, Arkady, Warszawa, 1996

Additional bibliography:

1. Projektowanie konstrukcji stalowych, Kurzawa, Chybiński, Wydawnictwo PP, Poznań, 2008

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	20
2. Participation in exercise classes	8
3. Participation in design classes	12
4. Complete (at home) works involved in the project	35
5. Participation in the consultations of the exercise and design classes	5
6. Preparation to the test in the field of exercise classes	20
7. Preparation to the exam in the field of lectures	30

Student's workload

Source of workload	hours	ECTS
Total workload	150	6
Contact hours	47	2
Practical activities	45	2