STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Design of Structures**		Code **1010112111010115654**
Field of study **Civil Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 1**
Elective path/specialty **-**	Subject offered in: **English**	Course (compulsory, elective) **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **30** Classes: **-** Laboratory: **-** Project/seminars: **15**		No. of credits **3**
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 %) **3 100%** **3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The basic methods of mathematical analysis, basic knowledge of structural mechanics and strength of materials. Basic knowledge of building materials.
2	**Skills**	Skills related to the static calculations, the ability to identify and describe building materials and their basic physical characteristics.
3	**Social competencies**	Aware of the continuous training and learning, ability to cooperate in the group taking the different roles.

Assumptions and objectives of the course:

Familiarizing of students with the issues of conceptual design and dimensioning of different types of structures according to the system of European standards PN-EN.

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

Knowledge:

1. Student knows rules of the constructions and analysis of chosen structural elements of buildings - [K_W02]
2. Student knows the software and computing procedures used to support the design process - [K_W08]
3. Student knows norms and guidelines of the designing of building objects and their elements - [K_W14]
4. Student knows basic regulations of the building law concerning designing and construction - [K_W17]

Skills:

1. Uses the building standards of loads on building structures, and can use standards in the static calculation - [K_U01]
2. Able to design the main structural components of building with the principles of European standards PN-EN - [K_U03]
3. Student can perform the basic static-strength calculations of main structural elements of building. - [K_U04]

Social competencies:

1. Student can collaborate and work together in a group and manage a team - [K_K01]
2. Student can adapt the type of structure to the social expectations - [K_K04]
3. Student has a consciousness of the need of the sustainable development of his personal competences - [K_K06]

Assessment methods of study outcomes

Final test of the student's knowledge in the field of material presented during the lectures,
The grading scale determined from:
more than 100 excellent (A+)
91 - 100 very good (A)
81 - 90 good plus (B)
71 - 80 good (C)
61 - 70 sufficient plus (D)
51 - 60 satisfactory (E)
under 50 insufficient (F)

Course description

1. The duties and requirements of the profession of civil engineer.
2. General principles and regulations of the building law for designing.
3. Preparation of the static calculation of structure elements (climatic loads, imposed loads).
4. Rules of dimensioning of timber, steel and concrete elements according to PN-EN standards (limit state method).
5. Designing the basic structural elements of buildings: beams, columns, plates, etc.

Basic bibliography:

1. T. Jones (2013), Analysis and Design of Structures: A Pracical Guide to Modeling. Bentley Institute Press
2. S, Trahair, M.A. Bradford, D.A. Nethercot, L. Gardner (2007): The Behaviour and Design of Steel Structures to EC3, Balkema
3. A.J. Bond et al. (2006), How to Design Concrete Structures using Eurocode 2. CCIP
4. J. Sobon, R. Schroeder (1984), Timber frame construction: all about post and beam building. Garden Way Pub

Additional bibliography:

1. J.R. Underwood, M. Chiuini (1998), Structural Design: A Practical Guide for Architects. John Waley & Sons
2. Alan Williams (2011), Steel structures design. The McGraw-Hill

Result of average student's workload

Activity	Time (working hours)
1. Classes participation	45
2. Works preparation	30
3. Computer work	15
4. Works finishing	15

Student's workload

Source of workload	hours	ECTS
Total workload	100	3
Contact hours	50	2
Practical activities	35	1