STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Industrial Structures		**1010101161010110111**
Field of study	Profile of study (general academic, practical)	Year /Semester
Sustainable Building Engineering First-cycle	**(brak)**	**3 / 6**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**
Cycle of study:	Form of study (full-time,part-time)	
First-cycle studies	**full-time**	
No. of hours		No. of credits
Lecture: **30** Classes: **-** Laboratory: **-** Project/seminars: **30**		**3**
Status of the course in the study program (Basic, major, other)	(university-wide, from another field)	
(brak)	**(brak)**	
Education areas and fields of science and art		ECTS distribution (number and %)
technical sciences		**3 100%**
Technical sciences		**3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledgo of strength of materials, structural machanics, soil machanics, foundation engineering, building engineering, concrete and steel structures.
2	**Skills**	Capability to acquire different types of knowledge from indicated standards and books. Capability to apply the theoretical knowledge to solve practical problems. The key skill to use the basic graphical and computational computer programs.
3	**Social competencies**	The ability to present the results of the own work. Real awareness of the necesity of broadening own knowledge and responsibility for taken decision.

Assumptions and objectives of the course:

The main objective is to acquaint students with peculiarities of the industrial building, and especially technological influencing factors, machanical actions, dynamic effects occuring in industry as well as ways of determination of structural form of industrial structures.

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

Knowledge:

1. Know how to define the load values for industrial structures. - [K_W07]
2. Know the rules of determining the structural form of the industrial structures. - [K_W04]
3. Know the rules of designing the simple steel and concrete structural elements. - [K_W07]

Skills:

1. Can define the load values on the structure correctly. - [K_U02]
2. Can develope a structural scheme of simple industrial structures. - [K_U07]
3. Is able to do preliminary sizing and detailed design of the basic structural elements. - [K_U08]

Social competencies:

1. Student is responsible for the obtained results. - [K_K02]
2. Student can work independently and in team. - [K_K01]

Assessment methods of study outcomes

Final written exam from lectures at the end of course (percentage limit of passing a test - 51 %).
Oral test from knowledge of issues relating to project.
Graded assignment of the project based on the project documentation.

Course description

Loads and technological influencing factors on industrial structures.
Mechanical actions and loads caused by overhead travelling cranes.
Construction and design of concrete and steel crane girders.
Construction of the overhead travelling crane trestle bridges.
Construction and design of masonry, concrete and steel industrial chimneys.
Underground and overground chimney smoke conduits design guidelines.
Construction and design of steel and concrete belt conveyor trerstle bridges.
Steel and concrete pipe racks sizing guidelines.
Teaching methods:
1. Zn information lecture supplemented by elements of the problem lecture and multimedia presentation.
2. Subjective classes based on illustrative and problem type case study.
3. Project consisting in the execution of practical task by group of students.

Basic bibliography:

1. Meller M., Pacek M.: Kominy przemysłowe. Wyd. Uczelniane Politechniki Koszalińskiej, Koszalin 2007.
2. Fijak S.: Kominy przemysłowe. Wyd. UKiP J&;D Gębka, Gliwice 2005.
3. Włodarczyk W., Kowalski A., Pietrzak K.:Projektowanie wybranych konstrukcji przemysłowych. Przykłady. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 1995.
4. Ziółko J., Włodarczyk W., Mendera Z., Włodarczyk S.: Stalowe konstrukcje specjalne. Arkady, Warszawa 1995.
5. Antoniak J.: Przenośniki Taśmowe. Wprowadzenie do teorii i obliczania. Wyd. Politechniki Śląskiej, Gliwice 2004.
6. Lipiński A.: Fundamenty pod maszyny. Arkady, Warszawa 1985.
7. Mielnik A.: Budowlane konstrukcje przemysłowe, cz. I i II. PWN, Warszawa 1975.

Additional bibliography:

1. Codes and Specifications.
2. Konstrukcje stalowe. Przykłady obliczeń według PN-EN 1993-1. Cz. 1-3 pod redakcją A. Kozłowskiego. Rzeszów 2012-15.
3. Knauff M.: Obliczanie konstrukcji żelbetowych według Eurokodu 2. Wydawnictwo Naukowe PWN, Warszawa 2012.
4. Knauff M., Golubińska A., Knyziak P.: Tablice i wzory do projektowania konstrukcji żelbetowych z przykładami obliczeń. Wydawnictwo Naukowe PWN, Warszawa 2013.
5. Puła O.: Projektowanie fundamentów bezpośrednich według Eurokodu 7. Wyd. III. Dolnośląskie Wydawnictwo Edukacyjne, Wrocław 2014.
6. Rawska-Skotniczy A.: Obciążenia budynków i konstrukcji budowlanych według Eurokodów. Wydawnictwo Naukowe PWN, Warszawa 2014.

Result of average student's workload

Activity	Time (working hours)
1. Lecture	30
2. Exercises	0
3. Project	30
4. Project calculation and construction drowings	15

Student's workload

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	60	2
Practical activities	45	2