



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Industrial structures [N1Bud1>BP]

### Course

Field of study

Civil Engineering

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

part-time

Requirements

elective

### Number of hours

Lecture

20

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

20

### Number of credit points

4,00

### Coordinators

dr inż. Tomasz Oleszkiewicz

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### Lecturers

### Prerequisites

Basic knowledge of the strength of materials and building mechanics The student is able to independently carry out a static analysis of bar structures, knows how to use selected computer tools for structure analysis and design

### Course objective

Presentation of methods and solutions used in the design of industrial facilities, including large-area halls. Acquainting students with modern methods and tools of computer structure analysis. Acquiring the ability to model tasks and efficiently carry out calculations of structures supporting the design process

### Course-related learning outcomes

Knowledge:

- design of engineering industrial facilities
- collecting loads (fixed, utility, climatic)
- optimization of steel structures
- optimization of reinforced concrete structures
- optimization of direct foundations

### Skills:

The ability to comprehensively design and optimize the construction of industrial halls and the use of computer programs such as Autodesk Robot Structural Analysis in the field of:

- static and stability analysis of rod structures
- uses advanced specialist tools to search for useful information, communication and acquiring software supporting the work of a designer and organizer of construction processes

### Social competences:

Awareness of the need to expand one's competences and take serious responsibility at work.

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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The credit for the lecture is based on the written answer given during the last lecture. During the answer, students answer 5 questions (tasks, derivation of dependencies or in the form of a description of the procedure). In doubtful cases, an interview to check the results achieved may be used. Passing threshold: 50% of points

During the projects exercises, students are assessed on an ongoing basis based on the progress of work in modeling and calculating tasks. The assessment covers each of the issued issues. Passing threshold: 50% of points

## Programme content

- presentation and discussion of typical structures of industrial halls
- presentation and discussion of static diagrams of typical structures of industrial halls
- collecting loads (fixed, utility, climatic)
- presentation and discussion of the types and types of housing for typical industrial hall structures
- foundation of typical structures of industrial hallsh

## Teaching methods

Multimedia presentation

## Bibliography

### Basic

PN-EN 1990:2004+A1:2008 Eurokod 0 - Podstawy projektowania konstrukcji

PN-EN 1991 (cz.1-1:2004, cz.1-2:2006, cz.1-3:2005, cz.1-4:2008, cz.1-5:2005, cz.1-6:2007, cz.1-7:2008, cz.3:2009 ) Eurokod 1 - Oddziaływania na konstrukcje.

PN-EN 1992-1-2:2008, Eurokod 2 – Projektowanie konstrukcji z betonu – Część 1-2: Reguły ogólne. Projektowanie z uwagi na warunki pożarowe.

PN-EN 1992 (cz.1-1:2008, cz.1-2:2008) Eurokod 2 - Projektowanie konstrukcji z betonu.

PN-EN 1993 ( cz.1-1:2006, cz.1-2:2007, cz.1-3:2008, cz1-5:2008, cz.1-8:2006, cz.6:2009 ) Eurokod 3 - Projektowanie konstrukcji stalowych.

### Additional

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. Żmuda J.: Konstrukcje wsporcze dźwignic. Wydawnictwo Naukowe PWN, Warszawa 2

## Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	36	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	64	2,50