Silesian University of Technology Civil Engineering Faculty

<u>1. Course number and name</u>

RB-S1-18-S70-D4, Industrial Structures Design

- 2. Credits and contact hours*
 - 4 ECTS, project: 45 hours**
- 3. Instructor's or course coordinator's name

Marcin Kozłowski PhD, DSc/University Professor

4. Text book, title, author, and year

- Setareh, Mehdi; Darvas, Robert, Concrete Structures, Springer International Publishing AG, 2016
- Mohamed A. El-Reedy, Construction Management and Design of Industrial Concrete and Steel Structures, CRC Press, 2010
- Edward Allen, Fundamentals of Building Construction: Materials and Methods, Wiley, 2013
- Manual for the design of concrete building structures to Eurocode 2, IStructE Ltd
- Autodesk: "Autodesk Robot Structural Analysis Training Manual ". Autodesk
- Autodesk: "Autodesk Robot Structural Analysis Getting Started Guide". Autodesk

a. other supplemental materials

- EN 1990 Eurocode: Basis of structural design
- EN 1991 Eurocode 1: Actions on structures
- EN 1995 Eurocode 2: Design of concrete structures

5. Specific course information

a. brief description of the content of the course (catalog description)

The subject is beyond the basic and directional content of education, the subject of the specialization. The aim of the course is to get acquainted with the general basic types of industrial structures, their role in the industrial plant process, determination of the specific construction loads and typical kinds of used construction.

b. prerequisites or co-requisites

Structural Mechanics, Structural Concrete

c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

Optional.

6. Specific goals for the course

<u>a. specific outcomes of instruction, ex. The student will be able to explain the significance</u> of current research about a particular topic The student knows:

- rules for determination of specific loads for special types of industrial structures,
- basic rules for constructing of industrial structures.

The student can:

- assemble basic loads for complex building structures and carry out a numerical analysis of the structures,
- classify industrial buildings due to the their structure and function.

The student is prepared to:

- analyse and present complex problems the civil engineering, the student is prepared to independently deepen the knowledge passed down in the technical literature.
- present civil engineering complex problems

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

K1A_U02, K1A_U03, K1A_U04, K1A_U07, K1A_K03

7. Brief list of topics to be covered

Individual design of industrial facility (eg. a complex truss structure, the shell, silo, telecommunications tower, water tower, industrial chimney, etc.). The project includes a brief description of the structure, the geometric model is made in a program for static analysis, applying realistic loads and analysis of the results of the internal forces.

*- Consultations were not included in the contact hours

**-per semester