



1. Course number and name

RB-S1-19-W13-11, **Steel Structures II**

2. Credits and contact hours*

4 ECTS, lectures: 15 hours**, classes: 6 hours**, project: 12 hours**

3. Instructor's or course coordinator's name

Szymon Swierczyna PhD

4. Text book, title, author, and year

- Handbook of Structural Steelwork - Eurocode Edition. BCSA, Tata Steel & SCI publication number 55/13.
- ECCS: Design of Joints in Steel Structures, Ernst & Son, 2017.

a. other supplemental materials

- EN 1993-1-1:2005 Eurocode 3: Design of Steel Structures. Part 1-1: General rules and rules for buildings.
- EN 1993-1-5:2003 Eurocode 3: Design of Steel Structures. Part 1-5: Plated structural elements.
- EN 1993-1-8:2003 Eurocode 3: Design of Steel Structures. Part 1-8: Design of Joints.

5. Specific course information

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

Lectures:

(1) Industrial steel halls, (2) Bracing, (3) Purlins, (4) Trusses, (5) Truss Joints, (6) Build-up members, (7) Basics of Global Analysis

Classes:

Presentation of the scope and details of the steel hall design: purlin and roof truss.

Project:

Design of single-storey, single-bay industrial hall: preliminary design drawing scale 1:100, static-strength calculations of the purlin and roof truss.

b. prerequisites or co-requisites

Steel Structures (sem. 4), Structural Mechanics (sem. 3 and 4)

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

Required.



6. Specific goals for the course

a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic

The student knows:

- student knows the principles of analysis and structural design of steel industrial halls,
- student knows the standards and guidelines for the design of steel halls and their components.

The student can:

- describe basic mechanisms of load transfer and perform the combination of actions for steel halls,
- design basic structural members of steel hall: purlins, trusses, built-up columns,
- identify most important factors and perform the global analysis of steel hall.

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

K1A_W05, K1A_W06, K1A_U02, K1A_U04

7. Brief list of topics to be covered

1. Shaping of industrial halls and canopies. Structural members. Typical loads. Static schemes and construction and of main structural systems.
2. Bracing of single storey steel buildings with and without cranes. Types rule, arrangement and shaping of bracing.
3. Roof and wall cladding. Design of purlins in compression and biaxial bending.
4. Design of trusses. Shaping, arrangement of web members and cross-sections.
5. Truss joints and field splices.
6. Built-up compression members. Structure of axially loaded built-up columns: lacings, battens, base, head.
7. Basics of global analysis of steel structures.

*-Consultations were not included in the contact hours

** -per semester