

SYLLABUS

Course title: Steel Structures (BudAB-KBIA>SI5STS19)

Course title (in Polish): *Konstrukcje stalowe*

The syllabus is valid since the summer semester of the academic year 2025/26 and its content is not subject to changes during the semester.

Course details:

Unit offering the course: Faculty of Civil Engineering

Course designated for the unit: The Silesian University of Technology

Specialization: Structural Engineering

Didactic cycle: Winter semester 2025/2026 - the third year of first degree studies

Coordinator of the course: Dr inż. Szymon Swierczyna

Delivery mode: in-person/hybrid

Number of ECTS credits: 3

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| Language: |
| English |
| Course homepage: |
| https://platforma2.polsl.pl/rb/course/view.php?id=476 |
| Prerequisites: |
| No requirements |
| Short description: |
| The aim of the course is to provide students with the knowledge and skills necessary in the design of steel structures. The technical content course complements and extends the range of knowledge and skills transferred within the Steel Structures course in the group of common subjects. |
| Description: |
| LECTURE: 15h Basic of frame joint design, Structural fire design, Design of bracing, Steel-concrete composite structures, Plate girders with corrugated web, Cellular beams, beams with tie rod, prestressed beams. CLASSES: 3h Presentation of the scope and details of the steel hall design: truss field splice, roof bracing, shop drawing of the truss. PROJECT: 12h Design of truss field splice and roof bracing, shop drawing of the truss scale 1:10 |
| Bibliography: |
| [1] Handbook of Structural Steelwork. Eurocode Edition. BCSA Publication No. 55/13. [2] ECCS: Design of Joints in Steel Structures, Ernst & Son, 2017. [3] M.E. Brette, D.G. Brown: Steel Building Design: Concise Eurocodes In accordance with Eurocodes and the UK National Annexes. Steel Construction Institute SCI P362. [4] EN 1993-1-1 Eurocode 3: Design of steel structures. Part 1-1: General rules and rules for buildings. [5] EN 1993-1-5:2003 Eurocode 3: Design of Steel Structures. Part 1-5: Plated structural elements. [6] EN 1993-1-8 Eurocode 3: Design of Steel Structures. Part 1-8: Design of Joints. [7] EN 1993-1-2:2003 Eurocode 3: Design of steel Structures. Part 1-2: Structural fire design. |

[8] EN 1994-1-1:2004 Eurocode 4: Design of composite steel and concrete structures. Part 1-1: General rules and rules for buildings.

Learning outcomes:

KNOWLEDGE

- (1) Student knows the principles of structural design of selected steel and steel-concrete composite members - [outcome K1A_W05],
- (2) Student knows the standards and guidelines for the design of selected steel and steel-concrete members - [outcome K1A_W06],
- (3) Student knows basics of structural fire design of steel structures - [outcome K1A_W05].

SKILLS

- (4) Student can design selected structural steel members and joints - [outcome K1A_U04],
- (5) Student can design simple steel-concrete composite structure - [outcome K1A_U04],
- (6) Student can establish fire resistance of steel structure with simple EC3 methods - [outcome K1A_U02].

Assessment methods and assessment criteria:

PREREQUISITES: No requirements.

CONDITIONS FOR PASSING THE COURSE:

- 1) active participation in the lecture, classes and project,
- 2) passing the colloquiums,
- 3) correct execution and defense of the project,

FINAL GRADE:

60% (colloquiums) + 40% (project).

In order to transfer partial grades, the student should contact the instructor within the first two weeks of the semester.

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Description of the ECTS calculation method:

| Type of activity | Number of hours |
|---|-----------------|
| Number of class hours, regardless of the delivery mode | 30 |
| Student's individual work 1* - <i>literature review</i> | 18 |
| Student's individual work 2* - <i>consultations and project defence</i> | 6 |
| Student's individual work 3* - <i>preparation of projects</i> | 18 |
| Student's individual work 4* - <i>preparation for a test</i> | 18 |
| Other** | - |
| Total hours | 90 |
| Number of ECTS credits assigned to the course | 3 |

Legend:

* - Student's individual work – specify the forms of activity, e.g. *preparation for classes, data interpretation, class report writing, preparation for an exam, literature review, preparation of a project, presentation development, written work, report, etc.*

** - other, e.g., *additional contact hours*