

## SYLLABUS

**Course title:** Steel Structures (BudAB>SI5STEELS19)

**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:** 4

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| <b>Language:</b>  |
| English   |
| <b>Course homepage:</b>   |
| <a href="https://platforma2.polsl.pl/rb/course/view.php?id=476">https://platforma2.polsl.pl/rb/course/view.php?id=476</a>   |
| <b>Prerequisites:</b>   |
| No requirements   |
| <b>Short description:</b>   |
| The aim of the course is to provide students with the basic knowledge and practical skills necessary in the design of steel structures, particularly industrial low-rise buildings with and without overhead cranes.  |
| <b>Description:</b>   |
| <b>LECTURE:</b> 15h<br>Industrial steel halls, Bracing, Purlins, Trusses, Truss Joints, Build-up members, Basics of Global Analysis of Steel Structures   |
| <b>CLASSES:</b> 6h<br>Presentation of the scope and details of the steel hall design: purlin and roof truss.  |
| <b>PROJECT:</b> 12h<br>Design of single-storey, single-bay industrial hall: preliminary design drawing in scale 1:100, static-strength calculations of the purlin and roof truss.   |
| <b>Bibliography:</b>  |
| [1] Handbook of Structural Steelwork. Eurocode Edition. BCSA Publication No. 55/13.<br>[2] ECCS: Design of Joints in Steel Structures, Ernst & Son, 2017.<br>[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.<br>[4] EN 1993-1-1 Eurocode 3: Design of steel structures. Part 1-1: General rules and rules for buildings.<br>[5] EN 1993-1-5:2003 Eurocode 3: Design of Steel Structures. Part 1-5: Plated structural elements.<br>[6] EN 1993-1-8 Eurocode 3: Design of Steel Structures. Part 1-8: Design of Joints |

| <b>Learning outcomes:</b>  |                 |
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| <b>KNOWLEDGE</b><br>(1) Student knows principles of analysis and structural design of steel industrial halls - [outcome K1A_W05]<br>(2) Student knows standards and guidelines for the design of steel halls and their components - [outcome K1A_W06]  |                 |
| <b>SKILLS</b><br>(3) Student can describe basic mechanisms of load transfer and perform the combination of actions for steel halls - [outcome K1A_U02]<br>(4) Student can design basic structural members of steel hall: purlins, trusses, built-up columns - [outcome K1A_U04]<br>(5) Student can identify most important factors and perform the global analysis of steel hall - [outcome K1A_U04] |                 |
| <b>Assessment methods and assessment criteria:</b>   |                 |
| <b>PREREQUISITES:</b> No requirements.   |                 |
| <b>CONDITIONS FOR PASSING THE COURSE:</b><br>1) active participation in the lecture, classes and project,<br>2) passing the colloquiums,<br>3) correct execution and defense of the project,   |                 |
| <b>FINAL GRADE:</b><br>60% (colloquiums) + 40% (project).  |                 |
| In order to transfer partial grades, the student should contact the instructor within the first two weeks of the semester.   |                 |
| The syllabus is valid from the summer semester of the 2025/2026 academic year, and its content is not subject to change during the semester.   |                 |
| <b>Description of the ECTS calculation method:</b>   |                 |
| Type of activity   | Number of hours |
| Number of class hours, regardless of the delivery mode   | 33              |
| Student's individual work 1* - <i>literature review</i>  | 25              |
| Student's individual work 2* - <i>consultations and project defence</i>  | 12              |
| Student's individual work 3* - <i>preparation of projects</i>  | 25              |
| Student's individual work 4* - <i>preparation for a test</i>   | 25              |
| Other**  | -               |
| <b>Total hours</b>   | <b>120</b>      |
| <b>Number of ECTS credits assigned to the course</b>   | <b>4</b>        |

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*