

METAL STRUCTURES

SUMMARY TO THE CURRICULUM OF HIGHER EDUCATION INSTITUTIONS 6-05-0732-02 Expertise and real estate management

	Form of higher education
	Full-time (day) from 2025/26 academic year
Course	3
Term	5, 6
Lectures, hours	50
Practical (seminar) classes, hours	50
Laboratory classes, hours	16
Term coursework	6
Offset, semester	5
Examination, term	6
Classroom hours in the discipline	116
Self-service, hours	100
Total hours per discipline/credits	216/6

1. Summary of the academic discipline

Materials of metal structures. Material operation. Basics of calculation of metal structures. Assortment. Connections of elements of metal structures. Welded and bolted connections of elements, operation and calculation. Beams and beam structures. Centrally compressed columns. Farms. Metal structures of single-storey production buildings. Basic design and layout of the building frame. Peculiarities of operation and calculation of the building frame. Coating elements. Framing columns. Crane structures. Half-timbered elements. Large span structures (beam, frame, arch). Sheet structures. Multi-storey building designs. Structures of high-rise structures. Shells. Membranes. Dome covers. Hanging structures. Reservoirs. Gasholders. Bunkers. Silo.

2. Training results

As a result of mastering the academic discipline, the student must

know:

- peculiarities of metal behavior in structures;
- fundamental provisions of the theory of calculation of elements of building metal structures;
- fundamentals of the technical and economic analysis of the effectiveness of the use of metal structures.

be able to:

- design and calculation of welded and bolted joints;
- perform calculations and design of elements of metal structures using existing technical regulatory legal acts and design automation tools;
- layout and design of industrial building frames.

have a skill:

- introduce methods of technical and economic analysis;
- own means of automated calculation of metal structures;
- possess the skills to study the stress-strain state of metal structures;
- perform calculation of large span buildings and structures: beam, frame and arch, hanging systems;
- design and calculate tower and mast-type high-rise structures.

3. Competencies to be formed

Master the basics of research, search, analyze and synthesize information.

Take the initiative and adapt to changes in professional activities.

Apply technical, regulatory, legal acts for the design of metal, reinforced concrete, stone, wooden structures and structures made of plastics for the solution of engineering and construction tasks.

4. Current certification of students is carried out to determine the compliance of the results of their educational activities with the requirements of educational standards, educational program documentation of educational programs of higher education. The form of the current certification of students is the test and exam. Current certification is carried out orally and in writing. The form of intermediate certification is control work, which is carried out in writing and includes the solution of tasks.