

MECHANICS OF MATERIALS AND STRUCTURES

(name of the discipline)

Annotation

TO THE CURRICULUM OF A HIGHER EDUCATION INSTITUTION

Specialty 1-36 07 02 "Production of products based on three-dimensional technologies"

	Form of higher education	
	Full-time education	higher Correspondence form of higher education
Course	2	3
Term	3,4	5,6
Lectures, hours	68	14
Practical (seminar)courses classes, hours	68	
Laboratory classes, hours	32	12
Course work, semester	3	6
Exam, semester	3,4	5,6
Classroom control work		2
Classroom hours in the academic discipline (including hours for managed independent work)	168 (10)	28
Independent work, hours	178	114
Total hours per academic discipline /credits	346/6	346/6

1. Summary of the academic discipline.

The objectives of the discipline are to teach the student the skills to choose the design schemes of real structures and calculate typical elements for strength, rigidity and stability, compare execution options and get the optimal solution according to the specified parameters.

2. Learning outcomes

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

To know: basic hypotheses of the mechanics of materials and structures; fundamentals of the theory of the stressed and deformed state of structures and methods of its research; methods for calculating the rigidity, strength and stability of rod systems and other typical structural elements;

be able to: perform laboratory tests to determine the physical and mechanical characteristics and mechanical properties of structural materials; solve statically indeterminate problems; draw up design schemes for standard structural elements; calculate standard structural elements for rigidity, strength and stability;

- perform calculations of elastic elements of machines for strength and rigidity;- correctly select elements of machine components and parts and methods of their calculation; - plot internal force factors under various types of loading; calculate strength and stiffness under tension-compression, bending and torsion; calculate structural elements that work for shear, compression and under complex loading;- calculate compressed rods for stability;

own: methods of calculating structural elements of machines, engineering structures and equipment elements for strength, rigidity and stability; skills in determining and evaluating the physical and mechanical properties of materials; skills in analyzing the behavior of real structures under stress and drawing up design schemes;

3. Emerging competencies

BOD-6- Be able to select the structural part and shape of structural elements, design schemes of technical structures, perform calculations of technical structures and their elements for strength, stability, and rigidity.

4. Requirements and forms of current and interim certification.

Survey on the topics of the lecture course, execution and defense of design and design tasks and course work., performing control work, performing and protecting laboratory tasks . Students who have not passed or defended individual assignments are not allowed to take the exam