ANNOTATION
TO THE WORK PROGRAM OF THE DISCIPLINE

MECHANICS OF MATERIALS

Specialties:
6-05-0713-04 Automation of technological processes and productions
profiling: automation of technological processes and productions in mechanical engineering
6-05-0714-02 Technology of mechanical engineering, metal-cutting machines and tools
profiling: technology of mechanical engineering
equipment and technologies of highly efficient processes of material processing
technological equipment of machine-building production
6-05-0714-03 Engineering and technical design and production of materials and products made from them
profiling: welding production equipment and technology

Qualification: Bachelor's degree
Specialties:
6-05-0713-04-1.1 (ATP); 6-05-0714-02-1.1 (TM);
6-05-0714-02-1.2 (VEP); 6-05-0714-02-1.3 (TOMP)

	The form of higher education		
	Full-time (full-time)	Correspondence for specialists. 6-05-0714-02-1.1 «Technology of mechanical engineering»	Correspondence abbreviated for spec. 6-05-0714-02-1. «Technology of mechanical engineering»
Course	2	2, 3	1
Semester	3, 4	4, 5	2
Lectures, hours	68	14	8
Practical exercises, hours	68	14	8
Laboratory classes, hours	32	8	4
Classroom test, semester (hours)	–	4 (2 hours)	–
Exam, semester	3,4	4, 5	2
Classroom hours in the academic discipline	168	38	20
Independent work, hours	120	250	268
Total hours of academic discipline / credits	288/8	288/8	288/8

Specialty 6-05-0714-03-1 (O and TSP)

	The form of higher education education		
	Full-time	Correspondence	Correspondence abbreviated
Course	2	2, 3	1
Semester	3,4	4, 5	2
Lectures, hours	68	14	8
Practical (seminar) classes, hours	50	10	8
Laboratory classes, hours	16	4	4
Classroom test, semester (hours)	–	4 (2 hours)	–
Exam, semester	3, 4	4, 5	2
Classroom hours in the academic discipline	134	30	20
Independent work, hours	226	330	340
Total hours of academic discipline / credits	360/10	360/10	360/10

1 The purpose of the academic discipline

The purpose of the discipline is to form students' basic knowledge and skills:
– according to the calculation of a typical structural element – a bar (rod, shaft, beam) used in difficult operating conditions under the influence of both static and dynamic loads, for strength, rigidity and stability;

– according to the rational purpose of structural materials and cross-sectional shapes that provide the required indicators of reliability, safety and cost-effectiveness of structures.

2 Planned results of the study of the discipline

As a result of studying the discipline, the student should
know:
− the basic hypotheses of material mechanics about the properties of structural materials and the nature of deformation;
− general requirements for structural materials;
− methods for calculating typical structural elements for strength, rigidity and stability;
− methods of experimental investigation of stresses and strains;
be able to:
− to apply in practice methods and approaches to solving engineering problems of calculating structures, parts and assemblies of machines for strength, rigidity and stability;
− to carry out the formulation of tasks taking into account the complex operational conditions of the operation of the object under study;
have a skill:
− theoretical and experimental analysis of structures for strength, rigidity and stability, taking into account the properties of structural materials;
− calculation of structures for their optimal use.

3 Requirements for mastering the academic discipline

The development of this academic discipline should ensure the formation of the following competencies:

Names of formed competencies
For specialties 6-05-0714-02-1.1 «Technology of mechanical engineering» and 6-05-0714-02-1.3 «Technology and equipment of machine-building production»
Use knowledge about the properties of structural materials and their interrelationships with the strength characteristics of parts to determine stress and deformation in typical machine parts.
For specialty 6-05-0714-02-1.2 «Equipment and technologies of highly efficient material processing processes»
Use knowledge about the properties of structural materials and their interrelationships with the strength characteristics of parts to determine stress and deformation in typical machine parts.
For the specialty 6-05-0714-03-1 «Equipment and technology of welding production»
To know modern ideas about the properties of structural materials and their interrelationships with the strength characteristics of parts, to be able to determine stresses and deformations in typical machine parts.
For the specialty 6-05-0713-04-1.1 «Automation of technological processes and productions (by directions)»
To know modern ideas about the properties of structural materials and their interrelations with the strength characteristics of parts, to be able to determine stresses and deformations in typical machine parts.

4 Educational technologies

When studying the discipline, a modular rating system for evaluating students' knowledge is used. Forms of classes in the study of various topics of the course: traditional, multimedia.