

Annotation

TO THE CURRICULUM OF THE DISCIPLINE

"COMPUTER MODELING AND ENGINEERING ANALYSIS"

For specialty 1-36 07 02, Production of products based on three-dimensional technologies

Specialist qualification: **Engineer**

	Form of higher education	
	Full-time	Correspondence
Course	3, 4	3, 4
Semester	5, 6, 7	5, 6, 7
Lectures, hours	66	24
Laboratory classes, hours	102	18
Term paper, semester	6	7
Classroom control work (semester, hours)		5 semester (2 hours), 6 semester (2 hours)
Credit, semester	5, 7	5, 7
Exam, semester	6	6
Classroom hours in the academic discipline	168	46
Independent work, hours	156	278
Total hours of academic discipline / credits	324/9	

1. The purpose of the discipline - The purpose of the discipline is to form students' skills in performing calculations using modern computer CAD systems to automate the design processes of structural elements, mechanical devices, working bodies of machines and mechanisms, taking into account the requirements of strength, rigidity, stability and durability.

2. Planned results of studying the discipline - as a result of mastering the academic discipline, the student must

to know:– basic principles of finite element analysis of field theory problems (stress fields, deformations, problems related to thermal processes);

– modern systems of finite element calculations;

be able to:– to apply in practice modern computer systems of finite element calculations to solving engineering problems of analyzing 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 functioning of the object under study;

– to optimize the geometry of the model for three-dimensional additive synthesis technologies.

own:– methodology of creation, management and optimization of three-dimensional geometry models using CAD;

– skills in drawing up calculation schemes and conducting engineering analysis using computer tools;

– methods of calculating structures for their optimal use.

3. Requirements for the development of an academic discipline - the development of this academic discipline should ensure the formation of the following competencies:

BOD-9 to be able to use computer software to simulate the main technological processes of additive technologies, to optimize them based on the results of modeling.

4. Educational technologies: traditional.