

ANNOTATION
TO THE CURRICULUM OF THE EDUCATIONAL INSTITUTION
“COMPUTER MODELING AND ENGINEERING ANALYSIS”

Specialty 6-05-0722-05, Production of products based on three-dimensional technologies

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

1. Brief content of the academic discipline - The objective of the academic discipline is to develop students' skills in performing calculations using modern computer CAD systems to automate the design of structural elements, mechanical transmissions, working parts of machines and mechanisms, taking into account the requirements of strength, rigidity, stability and durability.

2. Learning outcomes - as a result of mastering the academic discipline, the student should

know: - the 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:

- apply modern computer systems of finite element calculations in practice to solving engineering problems of analyzing structures, parts and assemblies of machines for strength, rigidity and stability;

- set problems taking into account the complex operating conditions of the object under study;

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

have the skills to:

– calculate the strength, rigidity and stability of structures taking into account the properties of structural materials;

– create, manage and optimize three-dimensional geometry of models using CAD;

– create calculation schemes and conduct engineering analysis using computer tools;

– calculate structures for their optimal use.

3. Competencies to be developed:

Names of the competencies being developed
To master the basics of research activities, to search, analyze and synthesize information
To be capable of self-development and improvement in professional activities
To show initiative and adapt to changes in professional activities
To use computer software to model the main technological processes of additive technologies, to optimize them based on the results of modeling

4. Requirements and forms of current and intermediate certification:

– protection of individual tasks (PID);

– current monitoring of academic performance (modular-rating monitoring system);

– midterm assessment (exam, tests).