

## Computer-aided design and simulation

### SUMMARY TO THE INSTITUTION'S CURRICULUM

Specialty 7-06-0732-01 Construction  
Profiling "Industrial and Civil Construction"

#### Advanced higher education

	Form of higher education	
	Full-time (day)	Part-time
Course	2	2
Term	3	3
Lectures, hours	8	2
Laboratory classes, hours	50	10
Offset, semester	3	
Classroom hours by academic discipline	58	
Total training hours discipline/credits	216 / 6	216 / 6

#### 1. Summary of the academic discipline

Structural analysis of 2D systems. Understanding Robot Structural Analysis. Reinforced concrete structures - 2D frame. Metal structures - 2D frame. Elastic-plastic analysis. Movable loads - 2D frame. Structural analysis of 3D systems. Movable loads - 3D frame. Steel structure with steel joints. 3D steel frame with masses. Concrete slab definition and analysis. Volumetric construction. Shell structures. Integration of Robot Structural Analysis with Revit. Building Design.

#### 2. Training results

- know the current level of development of computer-aided design systems and the basis for modeling and calculation of building structures;
- be able to formulate the physical and mathematical statement of the problem of studying modeling methods and develop and substantiate design solutions when creating construction objects using applied design packages based on BIM technology;
- have skills in using BIM technology when creating standard construction objects and organizing work based on BIM technologies.

#### 3. Competencies to be formed

Solve research and innovation problems based on the use of information and communication technologies.

Use modern software systems for design, 3D modeling, development of information models of industrial and civil objects, use the knowledge gained to solve practical, research and innovative problems.

4. Requirements and forms of current and intermediate certification - The student shows the ability to solve strength problems in the designed building structures. Demonstration of the completed task, offset.