GEOMETRIC MODELING IN CAD

COURSE SYLLABUS ABSTRACT

6-05-0713-04 «Automation of technological processes and productions»
(speciality code and name)
Automation of technological processes and productions in mechanical engineering
(concentration)

	STUDY MODE
	full-time
Year	4
Semester	8
Lectures, hours	12
Practical classes, hours	12
Pass/fail, semester	8
Contact hours	24
Independent study, hours	66
Total course duration in hours / credit units	90/3

1. Course outline

The purpose of the discipline is to provide students with general methodological foundations and practical skills in the development and application of geometric models of flat and three-dimensional design objects in CAD systems, as well as their visualization and manipulation using specialized software tools.

2. Course learning outcomes

Upon completion of the course, students will be expected to

– know the structure and principles of CAD design; modern terminology in the field of automation of engineering design; basic methods of automation of engineering design; methods of computer-aided design of structures and technologies; fundamentals of building three-dimensional models of engineering objects; methods of setting tasks for automated design of various design procedures and operations, their formalization and algorithmization; methods of working in CAD environments with different levels of design automation;

– be able to practically implement modern methods of creating geometric models during project work; to design engineering objects in the environment of modern CAD systems; to choose the correct class and complexity of the geometric model for the designed object;

– to possess a skill to create two-dimensional and three-dimensional geometric models of production facilities and automation tools for mechanical assembly operations in a CAD environment; use basic CAD software to develop automated design procedures for designing, modeling, and analyzing automation tools for mechanical assembly operations; and use computer design for structures and technologies.

3. Competencies

To master 2D and 3D modeling techniques for various shapes using a computer graphics system.

4. Requirements and forms of midcourse evaluation and summative assessment

Current assessment includes testing, performance, and oral defense of practical works. Each test assignment includes ten questions. When defending practical works, the student answers control questions.

The form of intermediate assessment is a test. The test includes two theoretical questions and a task that correspond to the content of the competencies being formed. The test is conducted in written form.