CAD FOR PRODUCTION EQUIPMENT

COURSE SYLLABUS ABSTRACT

6-05-0714-02 «Mechanical engineering technology, metal cutting machines and tools»
(speciality code and name)
«Mechanical engineering technology»
(concentration)

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		**part-time**	**part-time (shortened program)**
	6-05-0714-02	**6-05-0713-04**	**6-05-0714-02**	
Year	4	4	5	4
Semester	8	8	9	7
Lectures, hours	24	24	6	6
Laboratory classes, hours	24	24	6	6
Exam, semester	8 семестр	-	9 семестр	7 семестр
Pass/fail, semester	-	8 семестр		
Contact hours	48	48	12	12
Independent study, hours	42	42	78	78
Total course duration in hours / credit units	90/3	90/3	90/3	90/3

1. Course outline

The purpose of the discipline is to train specialists who are familiar with modern methods of automation of technological equipment design and automation of mechanical and assembly production using computers to solve the pressing problem of mechanical engineering: reducing the time, labor intensity, and improving the quality of technological preparation of production.

2. Course learning outcomes

Upon completion of the course, students will be expected to

- know the structure and principles of building CAD systems for technological equipment of production; modern terminology in the field of automation of technological equipment design; basic methods of automation of technological equipment design for mechanical and assembly production; methods of setting tasks for automated design of various design procedures and operations, their formalization and algorithmization; the current state of CAD systems for technological equipment of production; methods of working in the environment of CAD systems for technological equipment of production with different levels of design automation; methods of structural and parametric optimization of technological equipment of production;

– be able to design in the environment of modern CAD systems for technological equipment of production; configure the databases and knowledge bases of CAD systems for technological equipment of production for automated solution of logical and computational design tasks; formulate and algorithmize the main design tasks for technological equipment of mechanical assembly production;

- to possess a skill of creating two-dimensional and three-dimensional geometric models of production equipment and automation tools for mechanical assembly operations in a CAD (Computer-Aided Design) environment; to use basic CAD software in the development of automated design procedures for the design, modeling, and analysis of production equipment; to automate the design, modeling, and digital prototyping of production equipment; and to use integrated programming systems to automate the design procedures for modeling and analysis of production equipment.

3. Competencies

Know the methods of machine design of technological processes, presentation of information about a part and a process in a computer, search for analogues in databases, design of route and operational technological processes of mechanical and assembly production (6-05-0714-02).

Know the theoretical foundations and technology of designing technical systems, the principles of working in modern CAD packages, and have knowledge of the regulatory and technical framework for solving design problems (6-05-0713-04).

4. Requirements and forms of midcourse evaluation and summative assessment

Current certification includes oral defense of laboratory works and performance of a test. When defending laboratory works, the student answers control questions.

Forms of intermediate certification are exam (special. 6-05-0714-02) or test (special. 6-05-0713-04).

The exam is conducted in written form. The exam ticket includes two theoretical questions.

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