CAD OF TECHNOLOGICAL PROCESSES AND SYSTEMS
(name of the discipline)

ANNOTATION
TO THE CURRICULUM OF A HIGHER EDUCATION INSTITUTION

Specialty 1-36 01 04 «Equipment and technologies of highly efficient material processing processes»

	Form of higher education
	Full-time (daytime)
Course	4
Semester	7
Lectures, hours	34
Laboratory classes, hours	34
Exam, semester	7
Classroom hours in the academic discipline	68
Independent work, hours	40
Total hours of academic discipline / credits	108/3

1. Summary of the academic discipline

The purpose of teaching the discipline is to train specialists on the basis of selected theoretical knowledge in the field of CAD construction who possess modern methods of automating the design of technological processes and automation of mechanical assembly production using electronic computing technology to solve an urgent problem of mechanical engineering - reducing time, labor intensity and improving the quality of technological preparation of production.

2. Learning outcomes

The objective of the discipline is to acquire skills in automating the design of technological processes of mechanical assembly production. As a result of mastering the discipline, the student should **know**:

- structure and principles of CAD construction of technological processes;
- modern terminology in the field of automation of technological process design;
- basic methods of automation of design of technological processes of mechanical assembly production;
- methods of setting computer-aided design tasks for various design procedures, operations, their formalization and algorithmization;
- current state of CAD technological processes;
- the methodology of working in a CAD TP environment with different levels of design automation;
- methods of structural and parametric optimization of technological processes;
- a methodology for automating programming in the CAM environment of systems of technological operations performed on CNC machines.

As a result of mastering the discipline, the student should **be able to**:

- to design technological processes of various degrees of detail description based on generalized technological processes in the environment of modern CAD TP;
- perform configuration of databases and knowledge bases of CAD TP for automated solution of logical and computational design tasks;
- to carry out the formulation and algorithmization of the main tasks of designing technological processes of mechanical assembly production;
- to program technological operations performed on CNC machines in the CAM system environment.

As a result of mastering the discipline, the student must **possess**:

- skills in creating two-dimensional and three-dimensional geometric models of production facilities and automation tools for mechanical assembly operations in CAD systems;
- skills of using basic CAD software in the development of automated design procedures for designing, modeling and analyzing automation tools for mechanical assembly operations;
- methods of automation of design, modeling and digital prototyping of automation of mechanical assembly production;
- principles, methods and rules of use of integrated programming systems for automation of design procedures for modeling and analysis of objects of automation of mechanical assembly production.

3. Formed competencies

Mastering this discipline should ensure the formation of the competence of SK-6.3 - to be able to ensure a high level of automation in the design of technological processes, to know the principles and types of automated process control systems.

4. Educational technologies: multimedia, using computers.