MATHEMATICAL MODELING OF TECHNOLOGICAL TASKS

COURSE SYLLABUS ABSTRACT

6-05-0714-02 - «Mechanical engineering technology, metal-cutting machines and tools »

Specialization: Equipment and technologies for highly efficient material handling processes

(speciality code and name)

	STUDY MODE
	full-time
Year	4
Semester	8
Lectures, hours	24
Laboratory classes, hours	18
Exam, semester	8
Contact hours	42
Independent study, hours	48
Total course duration in hours / credit units	90/3

1. Course outline "Mathematical modeling of technological problems" is to increase the level of specialized competence in solving problems of modeling various technological problems.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- Elements of mathematical logic, graph theory, set theory, types of mathematical models, and the application of these methods to modeling process problems.
- Types of computer-aided design (CAD) systems, elements of systems engineering, methods for algorithmizing process problems, modeling methods in engineering design, types of CAD support;

be able to:

- Model the most efficient process routes in a FPS;
- Build empirical models of process objects;
- Optimize cutting conditions;

to possess a skill:

- mastery of modern methods for modeling technological problems

3. Competencies

Be able to ensure a high level of automation when designing technological processes, and know the principles and types of automated process control systems

4. Requirements and forms of midcourse evaluation and summative assessment

The following diagnostic tools and forms are used to assess the level of students' knowledge: defense of individual assignments (oral); passing an exam (oral and written).