

MICROPROCESSOR-BASED PRODUCTION EQUIPMENT

COURSE SYLLABUS ABSTRACT

Specialty 6-05-0714-02 Mechanical engineering technology, metal cutting machines and tools
Technological equipment of machine-building production

	STUDY MODE
	full-time
Year	3
Semester	6
Lectures, hours	34
Laboratory classes, hours	16
Practical classes (seminars), hours	16
Pass/fail, semester	6
Contact hours	66
Independent study, hours	42
Total course duration in hours / credit units	108/3

1. Course outline

The purpose of the discipline is to form specialists who can reasonably and effectively apply existing and master new methods of using microprocessors to control technological equipment of machine-building production.

2. Course learning outcomes

As a result of mastering the discipline, the student must

know the classification of microprocessors and the architectural features of microprocessor kits manufactured by industry; the structure of microprocessor control systems, their hardware implementation and software composition; the methodology of designing microprocessor control systems, calculation and selection of microprocessor tools; theoretical foundations and principles of operation of automatic control systems using microprocessors; ways to improve the economic and environmental performance of internal combustion engines by using microprocessor controllers;

be able to use the design methodology of microprocessor control systems; analyze and make a comparative assessment of the variants of the system under consideration using a microprocessor; program and debug microprocessor control systems;

have the skill of using microprocessors in control systems; implementation of control systems and multi-machine (computer) networks in technological equipment of machine-building production.

3. Competencies

Be able to design and design automated electromechanical drives of metal-cutting machines using modern components and performing calculations. Be able to design analog systems and select devices for digital control systems that match the functionality of technological equipment

4. Requirements and forms of midcourse evaluation and summative assessment

Current monitoring of the student's knowledge is carried out in laboratory classes during the interview before the laboratory work and during the defense of the report on the laboratory work, as well as in practical classes based on the results of solving individual control problems. Intermediate monitoring of the student's knowledge is carried out in the form of a test.