MICROPROCESSOR TECHNOLOGY OF TECHNOLOGICAL EQUIPMENT

COURSE SYLLABUS ABSTRACT

1-36 01 03 Technological equipment of machine-building production

	STUDY MODE	
	full-time	part-time (shortened program)
Year	3	3
Semester	6	6
Lectures, hours	50	12
Laboratory classes, hours	16	4
Practical classes (seminars), hours	16	4
Pass/fail, semester	6	6
Contact hours	82	20
Independent study, hours	38	100
Total course duration in hours / credit units	120/3	120/3

1. Course outline

Formation of 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

Upon completion of the course, students will be expected to

know:

- classification of microprocessors and architectural features of microprocessor kits produced by the industry;
- structure of microprocessor control systems, their hardware implementation and software composition;
- methodology for 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 through the use of microprocessor controllers;

be able to:

- use the methodology for designing microprocessor control systems;
- analyze and make a comparative assessment of the variants of the system under consideration using a microprocessor;
- to carry out programming and debugging of microprocessor control systems;

possess:

- methods of using microprocessors in control systems;
- methods of implementing control complexes and multi-machine (computer) networks in technological equipment of machine-building production.

3. Competencies

SC-1. Be able to design automated electromechanical, hydraulic, pneumohydraulic drives of metal-cutting machines using modern components and perform calculations / Be able to design analog systems and select digital control system devices that correspond to the functionality of technological equipment.

4. Requirements and forms of midcourse evaluation and summative assessment

To assess the quality of assimilation of educational material by students, including the acquired competencies, a current certification is carried out in the form of a credit for the academic discipline. The results of passing the tests are evaluated with the marks “passed” or “not passed”.

Intermediate control of progress is aimed at ensuring maximum efficiency of the educational process, increasing motivation for learning; provides for the assessment of the implementation of individual tasks for practical work and the defense of laboratory work.