AUTOMATION OF PRODUCTION PROCESSES IN ENGINEERING

(course title)

COURSE SYLLABUS ABSTRACT

Speciality: 6-05-0714-02 Mechanical engineering technology, metal cutting machines and tools,
Concentration «Mechanical engineering technology», «Equipment and technologies for highly efficient material processing processes»

	STUDY MODE			
	full-time 6-05-0714-02-1.2	full-time 6-05-0714-02-1.1	part-time	part-time (shortened program)
Year	4	4	4, 5	3
Semester	7	7, 8	8, 9	5, 6
Lectures, hours	34	34	8	8
Laboratory classes, hours	16	16	4	4
Course paper, semester	-	8	9	6
Pass/fail, semester	7	-	-	-
Exam, semester	-	7	8	5
Contact hours	50	50	12	12
Independent study, hours	94	80	118	118
Total course duration in hours / credit units	144/4	130/4		

1. Course outline.

The purpose of the discipline is to acquire by students a complex of special knowledge and skills for the organization of highly efficient automated production processes in mechanical engineering.

2. Course learning outcomes.

As a result of mastering the academic discipline, the student should

know:

- general patterns and directions of modern automated production;
- fundamentals of construction and methods for calculating technological processes of automated machine-building production;
- methods of managing production processes using modern technical means of automation and control computer technology;
- modern automated equipment necessary for organizing and managing a highly efficient production process;

be able to:

- calculate technological processes of automated machine-building production and devices for automatic loading of equipment;
- design functional and block diagrams of control systems for automated machine and robotic technological complexes, flexible production systems, etc.;
- draw up diagrams of algorithms for the functioning of automated machine systems, robotic technological complexes, flexible production systems, etc.;
- effectively use modern automated equipment necessary for organizing and managing the production process;

possess:

- the basics of construction and methods for calculating technological processes of automated machine-building production;
- the principles of constructing automated machine tools, robotic technological complexes, flexible production systems, etc.;
- methods of managing production processes using modern technical means of automation and control computer technology.

3. Competencies.

Mastering this academic discipline should ensure the formation of the following competencies:
Concentration «Mechanical engineering technology» - Be able to select methods and means of automation of various design and manufacturing processes for given production conditions, develop programs for numerically controlled (CNC) machines of various types for mechanical processing of parts. - Know the types and means of automation of production for various types of production and various production processes (processing, loading/unloading, control, etc.).
Concentration «Equipment and technologies for highly efficient material processing processes» - Be able to provide a high level of automation when designing technological processes, know the principles and types of automated process control systems.

4. Requirements and forms of midcourse evaluation and summative assessment.

To assess the level of knowledge of students, the following diagnostic tools are used: written reports on laboratory work with their oral defense; passing the test in writing, passing the exam in a combined manner (oral response with written preparation).