

HYDRAULIC AND PNEUMATIC DRIVE, HYDRAULIC AND PNEUMATIC AUTOMATIC MECHANISMS

(course title)

COURSE SYLLABUS ABSTRACT

Specialty 6-05-0714-02 Mechanical engineering technology, metal-cutting machines and tools. Specialization: Mechanical engineering technology. Equipment and technologies for highly efficient material processing processes. Technological equipment for mechanical engineering production.

Specialty 6-05-0713-04 Automation of technological processes and production. Specialization: Automation of technological processes and production in mechanical engineering.

	STUDY MODE			
	full-time	full-time 6-05-0714-02	part-time	
			part-time (shortened program) 6-05-0714-02	part-time 6-05-0714-02
Year	3	3	3	3
Semester	6	6	5	6
Lectures, hours	34	34	8	8
Laboratory classes, hours	16	16	4	4
Practical classes, hours	-	16	-	-
Pass/fail. semester	6	-	5	6
Exam, semester	-	6	-	-
Contact hours	50	66	12	12
Independent work, hours	58	42	96	96
Total course duration in hours / credit units	108/3			

1. Course outline

The discipline "Hydraulic and pneumatic drive, hydraulic and pneumatic automation" contains general ideas about the adjustment and operation of modern automated hydraulic and pneumatic drives of industrial plants.

2. Course learning outcomes

Upon completing of the course. Students will be expected to **know**: – classification, arrangement and principle of operation of elements of hydraulic and pneumatic drives, as well as the requirements for them;

- typical schemes and designs of hydraulic and pneumatic actuators and their elements;
- features of the working process in hydraulic and pneumatic elements and automated drives;
- fundamentals of the theory and calculation of hydraulic and pneumatic elements and hydraulic and pneumatic actuators;

- basics of modeling, synthesis and experimental study of hydraulic and pneumatic drives and their elements.

be able to:– set and solve the problem of choosing the main parameters of hydraulic and pneumatic elements and hydraulic pneumatic actuators; – draw up hydropneumatic diagrams of drives of technical systems; – calculate and design hydropneumoelements and drives for the required operating parameters with the necessary characteristics; – choose hydropneumatic elements, auxiliary hydropneumatic equipment and working environment (body) for hydraulic and pneumatic systems according to catalogs and reference books.

to press a skill:– basic principles of functioning and structure of hydraulic and pneumatic drives of technical systems; – methods of regulation and automation of hydraulic and pneumatic drives of technical systems.

3. Competencies:

Mastering this academic discipline should ensure the development of the following competencies:

For specialty 6-05-0714-02 Mechanical engineering technology, metal-cutting machines and tools Profile: Mechanical engineering technology. Equipment and technologies for highly efficient material processing processes: Be able to design individual units and metal-cutting machines as a whole, elements of hydraulic and pneumatic drives, as well as hydraulic and pneumatic automation, adaptations to the specified machines of various types, while using modern equipment control systems. For specialty 6-05-0714-02-3 Mechanical engineering technology, metal-cutting machines and tools Specialization: Technological equipment for mechanical engineering production: Be able to design hydraulic, pneumohydraulic drives for metal-cutting machines using modern components and performing calculations

For specialty 6-05-0713-04 Automation of technological processes and production Specialization: Automation of technological processes and production in mechanical engineering: Be proficient in methods for drawing up diagrams of hydraulic and pneumatic drives, methods for calculating the parameters of individual units and assemblies of hydraulic and pneumatic drives.

4. Requirements and forms of midcourse evaluation and summative assessment

Current and intermediate certification is carried out in written and oral-written form through reports on laboratory work with their oral defense, written test or exam.