HYDRAULICS AND HYDRAULIC MACHINERY
ANNOTATION
TO THE CURRICULUM OF THE EDUCATIONAL INSTITUTION

Specialty: 1-36 01 04 “Equipment and technologies for highly efficient material processing processes”

	Form of higher education
	Full-time (daytime)
Well	2
Semester	3
Lectures, hours	34
Laboratory classes, hours	16
Exam, semester	3
Classroom hours for the academic discipline (including hours for managed independent work)	50(4)
Independent work, hours	58
Total hours per academic discipline / credits	108/3

1. Brief content of the discipline

The discipline "Hydraulics and hydraulic machines" contains the material necessary for the preparation of graduates to independently and creatively solve the problems of designing, researching, adjusting and operating modern automated hydraulic and pneumatic drives of industrial plants.

2. Learning outcomes

As a result of mastering the academic discipline, the student should: **know**:

- classification, arrangement and principle of operation of elements of hydraulic and pneumatic drives for mechatronics and robotics, 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 hydro- and pneumatic elements and automated drives of mechatronic and robotic systems;
- fundamentals of the theory and calculation of hydro- and pneumatic elements and hydro- and pneumatic drives of mechatronic and robotic systems;
- 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 hydro-pneumatic elements and hydro-pneumatic drives of mechatronic and robotic systems;

- draw up hydropneumatic diagrams of drives of mechatronic and robotic systems;
- calculate and design hydropneumatic elements 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.

own:

- the basic principles of functioning and the structure of hydraulic and pneumatic drives of mechatronic and robotic systems;
- methods of regulation and automation of hydraulic and pneumatic drives of mechatronic and robotic systems.

3. Formed competencies

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

Codes formed competencies	Names of competencies being formed
BPK-13	To know the basic laws of fluid equilibrium and motion, the methods of their practical application and the principles of calculating hydraulic machines

4. Requirements and forms of current and intermediate certification

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