

VACUUM TECHNOLOGY AND SOURCES OF CONCENTRATED ENERGY FLOWS

(name of the discipline)

**ANNOTATION
TO THE CURRICULUM OF THE INSTITUTION OF HIGHER EDUCATION**

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

Form of higher education	
	Full-time (daytime)
Well	3
Semester	6
Lectures, hours	34
Laboratory classes, hours	34
Report, semester	6
Classroom hours per academic discipline	68
Independent work, hours	40
Total hours per academic discipline / credit units	108/3

1. Brief content of the discipline

The discipline "Vacuum Technology and Sources of Concentrated Energy Flows" contains general ideas about vacuum physics, methods for measuring pressure, methods for obtaining vacuum, leak detection and design of vacuum systems, electron beam guns and technological lasers and ion sources.

2. Learning Outcomes

A student who has studied the discipline should **know**:

- principles of operation of sensors for measuring vacuum;
- basic designs of vacuum pumps;
- the principle of operation of electron-beam and ion guns;
- principle of operation of lasers and their main types;

A student who has studied the discipline should **be able to**:

- to receive and measure the vacuum;
- use a laser, electron beam and ion guns;

A student who has studied the discipline **must have**:

- basic scientific and theoretical knowledge and apply them to solve theoretical and practical problems;
- an interdisciplinary approach to problem solving.

3. Formed competencies

Codes of generated competencies	Names of competencies being formed
SK-5	Possess knowledge of the designs of the main types of processing tools and the ability to design them using CAD, be proficient in modern methods of processing materials, including methods of processing with concentrated energy flows

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, written test.