GENERAL AND INORGANIC CHEMISTRY

annotation

TO THE CURRICULUM OF A HIGHER EDUCATION INSTITUTION

Specialty 1-36 07 02 Production of products based on three-dimensional technologies

	Form of higher education	Form of higher education
	Full-time (full-time)	Correspondence
Course	1	1, 2
Semester	1,2	2, 3
Lectures, hours	68	14
Laboratory classes, hours	68	12
Classroom control work	2 (2 часа)	3 (2 часа)
Exam, semester	1,2	2,3
Classroom hours for academic discipline (including hours for controlled independent work)	136 (12)	30
Independent work, hours	188	294
Total hours of academic discipline / credits	324/9	324/9

1 Summary of the academic discipline.

Basic concepts and laws of chemistry. The structure of the atom and the systematics of chemical elements. Chemical bond. Types of interaction of molecules. Complex connections. Chemistry of a substance in a condensed state. Energy of chemical processes. Chemical kinetics and equilibrium. Equilibrium in heterogeneous systems. Solutions. Electrochemical processes. Corrosion and protection of metals and alloys. Chemistry of metals. Electrochemical processes in power engineering, mechanical engineering and instrumentation. Inorganic chemistry of group IV p-elements. Chemistry of semiconductors. Elements of organic chemistry. Organic polymer materials. Chemistry and environmental protection.

As a result of studying the discipline, the student must

to know: the basics of the structure of substances and the frequency of changes in the properties of elements; chemical properties of metals and the main classes of inorganic substances, the most common ways of obtaining them; patterns of chemical reactions and the periodic law as the basis of the systematics of inorganic substances;

be able to: use the thermodynamic characteristics of substances and reactions when choosing the conditions for the implementation of technological processes; use knowledge about the properties of substances and methods of their production when choosing raw materials and ensuring the environmental safety of technological processes;

possess: methods for determining the thermodynamic characteristics of substances and reactions when choosing the conditions for the implementation of technological processes; methods for analyzing experimental data; methods for obtaining raw materials that ensure the environmental safety of technological processes.

3. Formed competencies: Be able to apply basic and scientific-theoretical knowledge of general, inorganic and organic chemistry to solve theoretical and practical problems in professional activity (SK-2).

4. Requirements and forms of current and intermediate certification.

The form of the current certification is an exam, the intermediate form is the protection of individual tasks.