

GENERAL AND INORGANIC CHEMISTRY

COURSE SYLLABUS ABSTRACT

TO THE CURRICULUM OF HIGHER EDUCATION INSTITUTIONS

Specialty 6-05-0722-05 Production of products based on three-dimensional technologies

	STUDY MODE
	full-time
Year	1
Semester	1,2
Lectures, hours	50
Laboratory classes, hours	50
Practical classes (seminars), hours	16
Exam, semester	1,2
Contact hours	116
Independent study, hours	208
Total course duration in hours / credit units	324/9

1 The content of the academic discipline includes sections: basic concepts and laws of chemistry, atomic structure, Periodic table of chemical elements, chemical bonds, complex compounds, energetics of chemical processes, rate of chemical reactions, chemical equilibrium, dispersed systems, electrolytic dissociation, ion exchange reactions, hydrolysis of salts, non-electrolyte solutions, redox reactions, galvanic cells, electrolysis, corrosion of metals, protection of metals from corrosion, methods of producing metals and their physicochemical properties, physicochemical properties of *s*- and *d*-metals and their compounds, iron family, copper subgroup, zinc subgroup, properties of *p*-elements, halogens, chalcogens and their compounds, nitrogen and its compounds, carbon and silicon.

2 As a result of mastering the academic discipline, the student must

know: the basics of the structure of substances and the frequency of changes in the properties of elements; chemical properties of metals and main classes of inorganic substances, the most common methods of their preparation; patterns of chemical reactions and the periodic law as the basis for the systematics of inorganic substances;

be able to: use the thermodynamic characteristics of substances and reactions when choosing conditions for implementing 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;

have the skill: mastery of methods for determining the thermodynamic characteristics of substances and reactions when choosing conditions for implementing technological processes; knowledge of methods for analyzing experimental data, methods of obtaining raw materials that ensure the environmental safety of technological processes.

3. Competencies being developed: SC 10 - Apply basic and scientific-theoretical knowledge in general and inorganic chemistry to solve theoretical and practical problems in professional activities.

4 Forms of current certification - defense of an individual assignment, form of intermediate certification - exam.