ORGANIC 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	
	Full-time	Correspondence
Course	2	2
Semester	3	4
Lectures, hours	16	6
Laboratory classes, hours	16	4
Практические занятия, часы Practical classes, hours	16	-
Classroom control work	-	2
Credit, semester	3	4
Classroom hours in the academic discipline	48	12
Independent work, hours	60	96
Total hours of academic discipline/ credits	108/3	108/3

1 Summary of the academic discipline.

Classification and nomenclature of organic compounds. The concept of functional groups. The main classes of organic compounds. Theory of the structure of A.M. Butlerov. The electronic structure of the carbon atom and chemical bonds. Mutual influence of atoms in molecules of organic compounds. Alkanes. Homological series, isomerism, nomenclature. Chemical properties of alkanes. Substitution reactions: halogenation, nitration, sulfonation, sulfochlorination, oxidation. The relationship between the structure of a hydrocarbon and the direction of substitution reactions. Methods for obtaining marginal hydrocarbons. Alkenes, alkynes. Homological series and nomenclature of alkenes and alkynes. The structure of molecules on the example of ethylene and acetylene Structural and spatial isomerism. Methods of obtaining. Chemical properties of alkenes and alkynes (addition, reduction, oxidation reactions). Acidic properties of alkynes Polymerization reaction. Aromatic hydrocarbons. Alcohols. Phenols. Aldehydes and ketones. Carboxylic acids. Amines.

2. As a result of studying the discipline, the student must:

know: the theory of A.M. Butlerov; the structure and reactivity of organic compounds; methods for obtaining organic compounds.

be able to: prove with the help of chemical reactions the chemical properties

of substances of organic nature; identify organic substances by physico-chemical properties; classify organic substances by acid-base properties; make formulas of organic compounds and give them names.

possess: skills of conducting an experiment; skills of analyzing experimental data.

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 a credit, the forms of the intermediate one are the protection of individual tasks.