

Ministry of Education and Science of Ukraine
State higher education institution
«Ukrainian State University of Chemical Technology»

Rector SHEI USUCT

_____K.M. Sykhyi

«_____»_____2019.

EDUCATION PROFESSIONAL PROGRAM

Food chemistry

(name of educational program)

The first (bachelor) level

(name of higher education level)

Bachelor

(the name of the degree awarded)

FIELD OF SCIENCES 10 Natural sciences

(code and name of the branch of knowledge)

SPECIALTY 102 Chemistry

(code and specialty name)

Approved at the Scientist meeting

SHEI USUCT

«_____»_____2019 .

protocol №_____

Dnipro
2019

PROFILE OF THE BACHELOR'S EDUCATION PROFESSIONAL PROGRAM
specialty 102 "Chemistry"

Program Profile (General Information)	
Full name of the qualification in the original language	<u>Bachelor</u> <u>Chemistry</u>
The official name of the educational program	Educational-professional program "Food Chemistry" for bachelor in specialty 102 Chemistry
Type of diploma and scope of educational program	Bachelor's Degree in Chemistry, single (double, joint with relevant contracts, training programs); 240 ECTS credits based on complete general secondary education; at least 120 ECTS credits based on the Bachelor's Degree (Junior Professional Education)
Full name of higher education institution awarding the qualification	State Higher Educational Institution "Ukrainian State University of Chemical Technology"
Accrediting organization	Accreditation Commission of Ukraine (State Educational and Training Center for Educational Quality). National Agency for Higher Education Quality Assurance.
Accreditation period	Certificate validity after initial accreditation - 5 years, after repeated - 10 years.
Cycle / level	NQF of Ukraine - level 7, QF-EHEA - first cycle, EQF-LLL - level 6, first (bachelor) level
Prerequisites	Complete General Secondary Education, Junior Bachelor's Degree (Junior Professional Education)
Language (s) of teaching	Ukrainian, English
A	
The purpose of the educational program	
The purpose of the educational program	The purpose of the educational program is training highly qualified specialists with wide access to employment, able to solve complex non-standard chemical and applied problems, to apply in professional activity the skills and competences acquired during training, to use the acquired professional competences in solving specialized problems in the field of chemistry , including food chemistry .
B	
Characteristics of the educational program	
Subject area (field of knowledge, specialty)	Field of Knowledge - 10 Natural Sciences. Specialty - 102 Chemistry.
The main focus of the program and specialization	Special education in chemistry with specialization in the field of food chemistry and obtaining the competencies required for the qualification of a chemistry teacher. The accent is on:

	<ul style="list-style-type: none"> - mastery of the theoretical basis of modern chemistry; modern methods of establishing the structure and chemical structure; methodology of chemical synthesis and analysis; - mastering the professional skills of working on modern equipment; - ability to apply the acquired skills in solving non-standard chemical and applied problems; - the ability of the applicants to use their professional competencies to solve specialized problems in the field of chemistry, including food chemistry; - decisions in complex and unpredictable environment, using new approaches; - formation of competences necessary for the chemistry teacher in secondary education institutions. <p>Keywords: chemistry, bachelor, food chemistry, chemistry teacher.</p>
<p>Orientation of the program</p>	<p>The Bachelor's Degree Program in Chemistry provides the following professional accents for mastering conceptual and methodological knowledge in the specialty "Chemistry";</p> <ul style="list-style-type: none"> • mastering the methodology of chemical synthesis and analysis; • ability to use special software, information technology; • solving actual problems and challenges of adopting effective professional solutions in chemistry, including the chemistry of food; • formation of competencies necessary for the assignment (in due course) of professional qualification of chemistry teacher in secondary education establishments.
<p>Features and differences</p>	<p>The program involves the acquisition of higher education applicants theoretical knowledge, skills and other competencies necessary and sufficient for professional work in chemistry, including the chemistry of foods, as well as for professional work of the teacher of chemistry in secondary school.</p> <p>The program provides for the study of a foreign language for four semesters and an optional one for three semesters, the study of specialized disciplines for the passage of educational, production and pedagogical practices.</p> <p>The program contains a block of educational disciplines of pedagogical and psychological direction in the variant component, and also provides acquisition of competencies in such subject areas as theoretical and psychological and pedagogical bases of management of the process of learning, content and principles of teaching chemistry.</p> <p>Particular attention in the program is given to the laboratory practicum, which will allow the applicants, together with the production practice, to obtain the necessary practical skills in</p>

	their field.
C	Ability to find employment and further education
Ability to employment	<p>Professional activity in the field of chemistry. According to the Classifier of Occupations DK 003: 2010 Bachelor of Specialty 102 Chemistry prepared for the following positions: 3111 – laboratory assistant (chemical and physical investigations); 3111 - laboratory technician (chemical and physical research); 3116 - laboratory technician (chemical production); 3211 - - Assistant Chemist; 349 - laboratory assistant; 3491 - laboratory assistant of the scientific unit; 8151 - chemical solution preparer; 8159 - chemical analysis laboratory assistant; 8159 - assistant master (chemical production); 3590 other specialists in the field of food and processing industry. The program envisages the formation of the competencies required to obtain (in due course) the professional qualification of a chemistry teacher in secondary education institutions.</p> <p>Professional activity in the field:</p> <ul style="list-style-type: none"> - chemical research in the departments and laboratories of scientific institutions; - chemical analysis, control and synthesis in the laboratories of chemical, food, pharmaceutical, oil and gas and agrochemical enterprises; - chemical ecology and environmental control; - chemical analysis and control in metrology and standardization laboratories, State Service of Ukraine for Food Safety and Consumer Protection, Department of Tax and Customs Expertise of the State Fiscal Service .
Further study	<p>Education at the second (master's) level. Acquiring additional qualifications in the system of postgraduate education.</p>
D	Teaching style and teaching methodology
Approaches to teaching and studying	<p>Combination of lectures, practicals and seminars, computer labs, writing course projects or papers, self-study, qualification work. Problematic, interactive, project-based, information-computer self-development, collective and integrative, contextual learning</p>

	technologies
Evaluation methods	Written and oral examinations, tests, presentations, defense of bachelor's qualification work.
E	Programme competencies
Integral competence (IC)	Bachelor's Degree (Level 6): The ability to solve complex specialized problems and practical problems in a particular area of professional activity or in the learning process, which involves the application of certain theories and methods of the relevant science and is characterized by the complexity and uncertainty of the conditions
General competencies (GC)	<p>GC-1. Ability to think abstractly, analyze and synthesize.</p> <p>GC-2. Ability to learn and master modern knowledge.</p> <p>GC-3. Ability to work in a team.</p> <p>GC-4. The ability to adapt and act in a new situation.</p> <p>GC-5. Skills use of information and communication technologies.Здатність спілкуватися іноземною мовою</p> <p>GC-6. Ability to communicate with representatives of other professional groups of different levels (with experts in other fields of knowledge / types of economic activity).</p> <p>GC-7. Ability to act on the basis of ethical considerations (motives).</p> <p>GC-8. The desire to preserve the environment.</p> <p>GC-9. Ability to search, process and analyze information from various sources.</p> <p>GC-10. The ability to be critical and self-critical.</p> <p>GC-11. The ability to realize their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of man and citizen in Ukraine.</p> <p>GC-12. Ability to preserve and enhance moral, cultural, scientific values and achievements of society on the basis of understanding of history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use different types and forms of motor activity for active rest and healthy way.</p>
Special (professional, subject) competence (SC)	<p>SC-1. The ability to apply knowledge and understanding of math and science to solve qualitative and quantitative problems in chemistry.</p> <p>SC-2. Ability to identify and analyze problems, apply sound</p>

	<p>methods of solving problems, make sound decisions in the field of chemistry.</p> <p>SC-3. Ability to evaluate and ensure the quality of work performed based on the requirements of chemical metrology and professional standards in the field of chemistry.</p> <p>SC-4. Ability to use special software and modeling in chemistry.</p> <p>SC-5. Ability to realize modern methods of data analysis.</p> <p>SC-6. Ability to assess risks.</p> <p>SC-7. Ability to perform typical chemical laboratory tests. Ability to carry out quantitative measurements of physicochemical quantities, to describe, analyze and critically evaluate experimental data. Ability to use standard chemical equipment.</p> <p>SC-8. Ability to master new fields of chemistry through self-study.</p> <p>SC-9. Ability to formulate ethical and social problems facing chemistry and ability to apply ethical standards of research and professional activity in the field of chemistry (scientific integrity).</p>
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F	Program learning outcomes
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results of studies	<p>R01. To understand key chemical concepts, basic facts, concepts, principles and theories related to life sciences and earth sciences, as well as chemical technologies at a level sufficient for their professional application and to enable further deep understanding of specialized fields of chemistry</p> <p>R02. To understand the basics of mathematics at a level sufficient to achieve the other learning outcomes provided by this standard and educational program.</p> <p>R03. To describe chemical data in symbolic form.</p> <p>R04. To understand the basic patterns and types of chemical reactions and their characteristics.</p> <p>R05. To understand the relationship between the structure and properties of substances.</p> <p>R06. To understand the periodic law and periodic table of elements, describe, explain and predict the properties of chemical elements and compounds based on them.</p> <p>R07. To apply the basic principles of quantum mechanics to describe the structure of atoms, molecules, and chemical bonds.</p> <p>R08. To know the principles and procedures of physical, chemical, physico-chemical research methods, typical equipment and instruments.</p> <p>R09. To plan and perform a chemical experiment, to apply</p>
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suitable techniques and techniques for the preparation of solutions and reagents.

R10. To apply basic principles of thermodynamics and chemical kinetics to solve professional problems.

R11. To describe the properties of aliphatic, aromatic, heterocyclic and organometallic compounds, explain the nature and behavior of functional groups in organic molecules.

R12. To know the basic synthesis pathways in organic chemistry, including functional group interactions and carbon-carbon bonding, carbon-heteroatom.

R13. To analyze and evaluate data, synthesize new ideas regarding chemistry and its applications.

R14. To carry out experimental work to test hypotheses and the study of chemical phenomena and laws.

R15. Ability to use acquired knowledge and skills to calculate, display and model chemical systems and processes, and process experimental data.

R16. To perform computer calculations related to chemical problems by using standard and special software, skills analysis and display of results.

R17. To work individually or in a group, get results within a limited time with an emphasis on professional honesty and scientific integrity.

R18. To demonstrate knowledge and understanding of basic facts, concepts, principles and theories in chemistry.

R19. To use your knowledge, understanding, competencies and basic engineering skills to practice tasks and problems of a known nature.

R20. To interpret the data obtained experimentally and to relate them to the relevant theories in chemistry.

R21. To monitor and analyze scientific sources of information and professional literature.

R22. To discuss problems of chemistry and its applications applied with colleagues and target audience of state and foreign languages.

R23. Competently present the results of your research in written in national and foreign languages, taking into account the purpose of communication.

R24. To use modern information and communication technologies in communication and for data collection, analysis, processing, interpretation.

R25. To evaluate and minimize environmental risks in carrying out professional activities.

I. DEFINITIONS OF EDUCATIONAL DISCIPLINES / MODULES, ensuring the achievement of the planned learning outcomes and forms of certification of higher education applicants in accordance with the higher education standard

Table 1. Distribution of the content of educational and professional program by cycles of preparation and form of final control

No	List of disciplines	credits	hours.	semestr	tetramestr	Final control
1. OBLIGATORY PART						
1.1	<i>General training cycle (generates competencies)</i>					
1.1.1.	History of Ukraine	3	90	1	1,2	exam
1.1.2.	Ukrainian language (professional)	3	90	4	9,10	exam
1.1.3.	Philosophy	3	90	3	5,6	exam
1.1.4.	History of Ukrainian Culture	2	60	2	3	d.offset
1.1.5.	Foreign language (professional)	5	150	1,2	1,2,3,4	offset exam
1.1.6.	Higher mathematics	9	270	1,2	1,2,3,4	exam
1.1.7.	Computational Mathematics and Programming	4	120	3	5,6	exam
1.1.8.	Physics	9	270	2,3	3,4,5,6	exam
1.1.9.	General and inorganic chemistry	6	180	1,2	1,2,3,4	exam
1.1.10.	Organic chemistry	6	180	3,4	5,6,7,8	d.offset exam
1.1.11.	Ecology	2	60	1	1	offset
1.1.12.	Physical Education (without credits)			1,2, 3,4	1-8	
	<i>TOTAL OF THE CYCLE 1.1</i>	52	1560			
1.2.	Training cycle					
1.2.1.	Engineering and computer graphics	3	90	1,2	1,2,3,4	offset

						d.offset
1.2.2.	Processes and apparatus of chemical industries	8	240	5,6	9,10,11,12,14	exam
1.2.3.	General chemical technology	8	240	5,6	9,10,11,12	exam
1.2.4.	Mathematical modeling and optimization of chemical technology objects	4	120	7	13,14	exam
1.2.5.	Process control and control	3	90	7	13,14	exam
1.2.6.	Economics, organization and management of enterprises	3	120	5	9, 10	d.offset
1.2.7.	Analytical chemistry	3,5	315	4	7, 8	exam
1.2.8.	Instrumental methods of chemical analysis	3,5	315	5	9, 10	d.offset
1.2.9.	Physical chemistry	8	240	4,5	7,8,9	exam d.offset
1.2.10.	Surface Phenomena and Disperse Systems (Colloid Chemistry)	3	90	5	10	exam
1.2.11.	Radiochemistry and fundamentals of radioecology	4	120	8	15	exam
1.2.12.	Life Safety	2	60	1	2	offset
1.2.13.	Basics of labor protection	1,5	45	5	10	exam.
1.2.14.	Internship	6	180	8	16	d.offset
1.2.15.	Preparation of bachelor's qualification work and state certification	9	270	8	16	SA
	TOTAL OF THE CYCLE 1.3	69,5	2535			
	OBLIGATORY PART TOGETHER	121,5	3095			
	2. Selective part					
2.1.	General training cycle					
2.1.1.	Economic theory	2	60	2	3	d.offset
2.1.2.	science of law	2	60	3	6	offset
2.1.3.	Crystal Chemistry	6	180	6	11, 12	d.offset
2.1.4.	Additional sections for compulsory discipline 1.1.3	2	60			

2.1.5.	Additional sections for compulsory discipline <i>1.1.5</i>	3	90			
2.1.6.	Additional sections for compulsory discipline <i>1.1.6</i>	6	180			
2.1.7.	Additional sections for compulsory discipline <i>1.1.7</i>	2	60			
2.1.8.	Additional sections for compulsory discipline <i>1.1.8</i>	3	90			
2.1.9.	Additional sections for compulsory discipline <i>1.1.9</i>	10	300			
2.1.10.	Additional sections for compulsory discipline <i>1.1.10</i>	3	90			
	<i>TOTAL TOGETHER 1.1</i>	39	1170			
2.2.	Professional training cycle					
2.2.1.	Material Science	2	60	4	8	offset
2.2.2.	Food Chemistry	6	180	3	5,6	exam
2.2.3.	Fundamentals of inorganic synthesis	3	90	4	8	d.offset
2.2.4.	Fundamentals of Bromatology	3	90	4	7	offset
2.2.5.	Physico-chemical bases of food production	8	240	6	11, 12	exam
2.2.6.	General psychology and psychology of school age	3	90	6	11	d.offset
2.2.7.	High school pedagogy	5	150	6	12	offset
2.2.8.	Methods of teaching chemistry in high school chemistry	3	90	7	13	offset
2.2.9.	Chemistry of coordination compounds	4	120	7	13, 14	exam
2.2.10.	Chemistry of food additives	5	150	7,8	14,15	offset
						exam

2.2.11.	Food quality and safety	3	90	7	13, 14	exam
2.2.12.	One of the sample disciplines:	12	360	7,8	13,14,15	exam
2.2.12.1.	Metal Complexes in Medicine					
2.2.12.2.	Bioorganic chemistry					
2.2.12.3.	Biologically active substances in food					
2.2.13.	Fundamentals of food production technology	3	90	8	15	d.offset
2.2.14.	Additional sections for compulsory discipline 1.2.1	3	90			
2.2.15.	Additional sections for compulsory discipline 1.2.4	2	60			
2.2.16.	Additional sections for compulsory discipline 1.2.5	1	30			
2.2.17.	Additional sections for compulsory discipline 1.2.6	1	30			
2.2.18.	Additional sections for compulsory discipline 1.2.7	2,5	75			
2.2.19.	Additional sections for compulsory discipline 1.2.8	0,5	15			
2.2.20.	Additional sections for compulsory discipline 1.2.9	7	210			
2.2.21.	Additional sections for compulsory discipline 1.2.13	1,5	45			
2.2.22	Additional sections for compulsory discipline 1.2.14	0,5	15			
2.2.23	Additional sections for compulsory discipline 1.2.15	0,5	15			
	TOTAL OF THE CYCLE 2.2	79,5	2415			
	SELECTIVE PART TOTAL	118,	3555			

		5				
	<i>THE TOTAL AMOUNT</i>	240	7200			

Table 2. Generalized content distribution of educational and professional program by component groups (disciplines) and training cycles

№ п/п	Training cycle	Higher education student load (credits /%)		
		Compulsory Components of the Professional Education Program	Selective Components of the Professional Education	Program For the whole term of study
1.	General training cycle (generates competencies)	64,5 / 26,88	22,5 / 9,38	87,0 / 36,26
2.	Training cycle (forms special (professional) competences	111,5 / 46,46	41,5 / 17,29	153,0 / 63,75
Total for the whole term of study		176,0 / 73,33	64,0 / 26,67	240 / 100

Table 3. The list of disciplines of the educational and professional training program for first-time (bachelor) level students, the teaching time in ECTS credits by training cycles, and the list of competences and learning outcomes formed

Training cycles	Competency Codes	Learning outcomes codes	List of disciplines	Credits ECTS
1	2	3	4	5
1. OBLIGATORY EDUCATIONAL DISCIPLINES				
.1 General training cycle (generates competencies)	GC-1, GC-2, GC-8, GC-9, GC-10, GC-11	R17, R19, R21, R23, R 24	1.1.1. History of Ukraine	3,0
	GC-1, GC-3, GC-4, GC-9, GC-11	R 17, R 19, R21, R22, R23, R24	1.1.2. Ukrainian language (professional)	3,0
	GC-1, GC-2, GC-7, GC-8, GC-9, GC-11	R17, R19, R21, R22, R23, R24	1.1.3. Philosophy	3,0
	GC-1, GC-7, GC-10, GC-11	R17, R19, R21, R23, R24	1.1.4. History of Ukrainian Culture	2,0
	GC-1, GC-3, GC-5, GC-6, GC-9, GC-11, SC-4	R17, R19, R21, R22, R23, R24	1.1.5. Foreign language (professional)	5,0
	GC-1, GC-3, GC-8, GC-15, SC-1, SC-2	R01, R02, R05, R06, R13, R15, R16, R19, R21, R24	1.1.6. Higher mathematics	9,0
	GC-1, GC-2, GC-3, GC-6, GC-8,	R01, R02, R05, R06, R13,	1.1.7. Computational	4,0

	GC-13, SC-1, SC-2, SC-5	R15, R16, R19, R21, R24	Mathematics and Programming	
	GC-1, GC-2, GC-3, GC-6, GC-8, GC-12, GC-13, GC-15, SC-1, SC-2	R01, R02, R05, R06, R13, R15, R16, R19, R20, R21, R24	1.1.8. Physics	9,0
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-1, SC-2, SC-3, SC-10,	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	1.1.9. General and inorganic chemistry	6,0
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-1, SC-2, SC-3, SC-10,	R01, R03, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22,	1.1.10. Organic chemistry	6,0
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-2	R17, R19, R20, R21, R22, R23, R24	1.1.11. Ecology	2,0
			1.1.12. Physical education (extra-curricular discipline)	
			<i>TOTAL OF THE CYCLE 1.1</i>	52,0
1. .2 Training cycle (forms special	GC-1, GC-3, GC-6, GC-7, GC-8, GC-13, SC-1, SC -6, SC -7, SC -11,	R02, R04, R08, R09, R10, R15, R16, R17, R19, R21	1.2.1. Engineering graphics	3,0

(professional) competences)	GC-1, GC-3, GC-4, GC-6, GC-7, GC-8, GC-9, GC-12, GC-13, SC-1, SC -2, SC -5, SC -6, SC - 7, SC -8, SC -9,	R01, R02, R04, R05, R06, R07, R08, R09, R10, R11, R12, R13, R14, R15, R16, R19, R20, R21, R25	1.2.2. Processes and apparatus of chemical industries	8,0
	GC-1, GC-3, GC-4, GC-6, GC-7, GC-8, GC-9, GC-12, GC-13, SC-1, SC -2, SC -5, SC -6, SC - 7, SC -9, SC-10	R01, R02, R04, R05, R06, R07, R08, R09, R10, R11, R12, R13, R14, R15, R16, R19, R20, R21, R25	1.2.3. General chemical technology	8,0
	GC-1, GC-3, GC-6, GC-7, GC- 8, GC-9, GC-13, , SC-1, SC -2, SC -3, SC -5, SC -6, SC -7, SC - 9	R01, R02, R04, R05, R07, R08, R10, R11, R12, R13, R14, R15, R16, R19, R20	1.2.4. Mathematical modeling and optimization of chemical technology objects	4,0
	GC-1, GC-3, GC-6, GC-7, GC- 8, GC-9, GC-12, GC-13, SC-1, SC -2, SC -3, SC -5, SC -6, SC - 7, SC -9, SC -10	R02, R04, R05, R07, R08, R10, R11, R12, R13, R14, R15, R16, R19, R20	1.2.5. Control and management of chemical and technological processes	3,0
	GC-1, GC-2, GC-4, GC-6, GC-7, GC-8, GC-10, GC-13, SC-1, SC -2, SC-3, SC -5, SC -6, SC -7, SC -8, SC -9, SC-11,	R02, R04, R05, R07, R08, R10, R11, R12, R13, R14, R15, R16, R17, R19, R25	1.2.6. Economics, organization and management of chemical enterprises	3,0
	GC-1, GC-3, GC-8, GC-12, GC- 13, SC-1, SC-2, SC-3, SC-10	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20,	1.2.7. Analytical chemistry	3,5

		R21, R22		
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-1, SC-2, SC-3, SC-10	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	1.2.8. Instrumental methods of chemical analysis	3,5
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-1, SC-2, SC-3, SC-10,	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	1.2.9. Physical chemistry	8,0
	GC-1, GC-3, GC-8, GC-12, GC-13, SC-1, SC-2, SC-3, SC-10,	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	1.2.10. Surface Phenomena and Disperse Systems (Colloid Chemistry)	3,0
	GC-1, GC-2, GC-3, GC-4, GC-6, GC-7, GC-12, SC-1, SC-3, SC -4, SC -6, SC -7, SC -8, SC -10, SC -11	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22, R25	1.2.11. Radiochemistry and fundamentals of radioecology	4,0
	GC-1, GC-4, GC-7, GC-8, GC-12, GC-13, SC-10	R18, R19, R20, R21, R24, R25	1.2.12. Life Safety	2,0
	GC-1, GC-2, GC-4, GC-7, GC-8, GC-9, GC-12, SC-10	R18, R19, R20, R21, R24, R25	1.2.13. Basics of labor protection	1,5

	GC-1, GC-2, GC-3, GC-4, GC-7, GC-8, GC-12, GC-13, GC-14, GC-15, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-10, SC-11	R01, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22 R24, R25	1.2.14. Internship	6,0
	GC-1, GC-3, GC-4, GC-7, GC-8, GC-12, SC-1, SC-2, SC-3, SC-4, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22, R23, R24	1.2.15. Preparation of bachelor's qualification work and state certification	9,0
			TOTAL OF THE CYCLE 1.2	69,5
			OBLIGATORY PART TOGETHER	121,5
2. SELECTIVE DISCIPLINES				
2.1. General training cycle (generates general competencies)	GC-1, GC-8, GC-10	R19, R21, R23, R24	2.1.1.Economic theory	2,0
	GC-1, GC-10	R19, R21, R23, R24, R25	2.1.2. science of law	2,0
	GC-1, GC-3, GC-8, GC-12, GC-13,, SC-1, SC-2, SC-3, SC-10	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	2.1.3. Crystal Chemistry	6,0
			TOGETHER	10,0
			Additional credits for	2,0

			compulsory discipline 1.1.3	
			Additional credits for compulsory discipline 1.1.5	3,0
			Additional credits for compulsory discipline 1.1.6	6,0
			Additional credits for compulsory discipline 1.1.7	2,0
			Additional credits for compulsory discipline 1.1.8	3,0
			Additional credits for compulsory discipline 1.1.9	10,0
			Additional credits for compulsory discipline 1.1.10.	3,0
			TOGETHER	29,0
			TOTAL OF THE CYCLE 2.1	39,0
2.2 Training cycle (forms special (professional))	GC-1, GC-3, GC-4, SC-1, SC-4, SC-6, SC-10, SC-11	R01, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	2.2.1. Material Science	2,0

competences)	GC-3, GC-4, GC-15, SC-1, SC-6, SC-7, SC-11	R01, R03, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22,	2 .2. 2. Food chemistry	6,0
	GC-1, GC-3, GC-4, GC-6, GC-7, SC-1, SC -2, SC -6, SC -7, SC -11	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	2. 2. 3. Basics of inorganic synthesis	3,0
	GC-1, GC-3, GC-4, GC-7, SC-1, SC-2, SC-3, SC-4, SC-5, SC-6, SC-7, SC-8, SC-10,	R01, R03, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22,	2.2.4. Fundamentals of Bromatology	3,0
	GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R03, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22	2.2.5 Physico-chemical bases of food production	8,0
	GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11, SC-12, SC-13,	R17, R19, R21, R22, R23, R24	2. 2.6 General psychology and psychology of school age	3,0

GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R17, R19, R21, R22, R23, R24	.2.7 Secondary school pedagogy	5,0
GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R19, R21, R22, R23, R24	2.2.8. Methods of teaching high school chemistry	3,0
GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R03, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	2.2.9. Chemistry of coordination compounds	4,0
GC-3, GC-4, SC-1, SC-6, SC-7, SC-11	R01, R03, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22	2.2.10. Chemistry of food additives	5,0
GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-2, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R04, R05, R06, R07, R09, R10, R13, R14, R15, R17, R18, R19, R20, R21, R22	2. 2.11. Food quality and safety	3,0

GC-1, GC-2, GC-3, GC-4, GC-7, GC-8, GC-12, GC-13, GC-15, SC-1, SC-2, SC-3, SC-4, SC-5, SC-6, SC-7, SC-9, SC-10, SC-11,	R01, R04, R05, R06, R07, R09, R10, R11, R12, R13, R14, R15, R17, R18, R19, R20, R21, R22,	.2.12 One of the sample modules	12,0
GC-1, GC-2, GC-3, GC-6, GC-7, GC-8, GC-9, GC-10, GC-11, GC-12, GC-13, SC-1, SC-3, SC-5, SC-6, SC-7, SC-8, SC-9, SC-10, SC-11	R01, R02, R04, R05, R06, R07, R08, R09, R10, R11, R12, R13, R14, R15, R16, R19, R20, R21, R25	2.2.12.1 Metal Complexes in Medicine	3,0
		2.2.12.2 Inorganic Chemistry	60,0
		2.2.12.3 Biologically active substances in food	3,0
		2.2.13. Fundamentals of food production technology	2,0
		TOGETHER	1,0
		Additional credits for compulsory discipline 1.2.1.	1,0
		Additional credits for compulsory discipline 1.2.7.	2,5
		Additional credits for compulsory discipline 1.2.8.	0,5

			Additional credits for compulsory discipline 1.2.9.	7,0
			Additional credits for compulsory discipline 1.2.13.	1,5
			TOTAL OF THE CYCLE 2.2	18,5
			SELECTIVE PART TOGETHER	78,5
			TOTAL VOLUME	240

Table 4. Matrix of correspondence of program competences to educational components

	OC1.1.1	OC1.1.2	OC1.1.3	OC1.1.4	OC1.1.5	OC1.1.6	OC1.1.7	OC1.1.8	OC1.1.9	OC1.1.10	OC1.1.11	OC1.2.1	OC1.2.2	OC1.2.3	OC1.2.4	OC1.2.5	OC1.2.6.	OC1.2.7	OC1.2.8	OC1.2.9	OC1.2.10	OC1.2.11	OC1.2.12	OC1.2.13	OC1.2.14	OC1.2.15
GC1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
GC2	+		+				+	+									+					+		+	+	
GC3		+			+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+			+	+
GC4		+											+	+			+					+	+	+	+	+
GC5					+																					
GC6					+		+	+				+	+	+	+	+	+					+				
GC7			+	+								+	+	+	+	+	+					+	+	+	+	+
GC8	+		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
GC9	+	+	+		+								+	+	+	+									+	
GC10	+			+													+									
GC11	+	+	+	+	+																					
GC12								+	+	+	+		+	+		+		+	+	+	+	+	+	+	+	+
GC13							+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	
SC1						+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+			+	+

SC2		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+				+	+		
SC3						+	+				+	+	+	+	+	+	+	+				+	+	
SC4		+																	+				+	
SC5							+		+	+	+	+	+										+	+
SC6							+		+	+	+	+	+								+		+	+
SC7							+		+	+	+	+	+								+		+	+
SC8									+				+								+			+
SC9									+	+	+	+	+											+
SC10						+	+				+			+		+	+				+	+	+	+
SC11									+				+								+			+

	SC 2.1.1	SC 2.1.2	SC2.1.3	SC 2.2.1	SC2.2.2	SC2.2.3	SC2.2.4	SC2.2.5	SC2.2.6	SC2.2.7	SC2.2.8	SC2.2.9	SC2.2.10	SC2.2.11	SC2.2.12	SC2.2.13
GC1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
GC2							+	+	+	+	+	+		+	+	+
GC3				+	+	+	+	+	+	+	+	+	+	+	+	+
GC4				+		+									+	
GC5																
GC6							+	+	+	+	+	+		+		+
GC7						+	+	+	+	+	+	+		+	+	+
GC8	+		+		+		+	+	+	+	+	+	+	+	+	+
GC9							+	+	+	+	+	+		+		+
GC10	+	+					+	+	+	+	+	+		+		+
GC11							+	+	+	+	+	+		+		+
GC12					+		+	+	+	+	+	+	+	+	+	+
GC13					+		+	+	+	+	+	+	+	+	+	+
SC1				+	+	+	+	+	+	+	+	+	+	+	+	+
SC2					+	+	+	+	+	+	+	+	+	+	+	+
SC3					+	+	+	+	+	+	+	+	+	+	+	+
SC4				+		+									+	
SC5						+	+	+	+	+	+	+		+	+	+

SC6	+		+	+	+	+	+	+	+		+	+	+
SC7				+	+	+	+	+	+		+	+	+
SC8				+	+	+	+	+	+		+		+
SC9			+	+	+	+	+	+	+		+	+	+
SC10	+	+			+	+	+	+	+	+	+	+	+
SC11	+		+		+	+	+	+	+		+	+	+

Table 5. Software Matrix for Software Learning Outcomes with Related Components

educational and professional program

	OC 1.1.1	OC 1.1.2	OC 1.1.3	OC 1.1.4	OC 1.1.5	OC 1.1.6	OC 1.1.7	OC 1.1.8	OC 1.1.9	OC 1.1.10	OC 1.1.11	OC 1.2.1	OC 1.2.2	OC 1.2.3	OC 1.2.4	OC 1.2.5	OC 1.2.6	OC 1.2.7	OC 1.2.8	OC 1.2.9	OC 1.2.10	OC 1.2.11	OC 1.2.12	OC 1.2.13	OC 1.2.14	OC 1.2.15
R01						+	+	+	+	+			+	+	+			+	+	+	+	+			+	+
R02						+	+	+				+	+	+	+	+	+									
R03										+	+								+	+	+	+	+			
R04									+	+		+	+	+	+	+	+	+	+	+	+	+	+		+	+
R05						+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+		+	+
R06						+	+	+	+	+			+	+					+	+	+	+	+		+	+
R07									+	+			+	+	+	+	+	+	+	+	+	+	+		+	+
R08												+	+	+	+	+	+									
R09									+	+		+	+	+					+	+	+	+	+		+	+
R10									+	+		+	+	+	+	+	+	+	+	+	+	+	+		+	+
R11										+			+	+	+	+	+									
R12										+			+	+	+	+	+									
R13						+	+	+	+	+			+	+	+	+	+	+	+	+	+	+			+	+

	SC 2.1.1	SC 2.1.2	SC2.1.3	SC 2.2.1	SC 2.2.2	SC 2.2.3	SC 2.2.4	SC 2.2.5	SC 2.2.6	SC 2.2.7	SC 2.2.8	SC 2.2.9	SC 2.2.10	SC 2.2.11	SC 2.2.12	SC 2.2.13
R01			+	+	+	+	+	+			+	+	+	+	+	+
R02																+
R03			+		+	+	+	+			+	+	+			
R04			+	+	+	+	+	+			+	+	+	+	+	+
R05			+	+	+	+	+	+			+	+	+	+	+	+
R06			+	+	+	+	+	+			+	+	+	+	+	+
R07			+	+	+	+	+	+			+	+	+	+	+	+
R08																+
R09			+	+	+	+	+	+			+	+	+	+	+	+
R10			+	+	+	+		+			+	+	+	+	+	+
R11					+		+	+					+		+	+
R12					+		+	+					+		+	+
R13			+	+	+	+	+	+			+	+	+	+	+	+
R14			+	+	+	+	+	+			+	+	+	+	+	+
R15			+	+	+	+	+	+			+	+	+	+	+	+

III - FORMS OF ATTESTATION OF APPLICANTS FOR HIGHER EDUCATION

Forms of attestation of applicants for higher education	The obligatory form of state certification is the implementation and protection of qualification (diploma) works. The system of competencies and learning outcomes specified in Chapters IV and V. are subject to state certification. The main means of objective control of the degree of achievement of the final goals of education and professional preparation of bachelors is the technology of performance and protection of qualification (diploma) works, which is defined in the following documents: Regulations on EC, Guidelines for the fulfillment of qualification (diploma) works.
Requirements for final qualification work (in the presence)	The requirements for the final qualification work are set out in the Guidelines for the completion of qualification (diploma) works. The final qualification work is accompanied by the review of the scientific supervisor and the reviewer's review, which are responsible for checking the completeness of the tasks, the quality of the work as a whole and checking it for plagiarism.
Certification / Uniform Qualification Exam Requirements (exams) (in the presence)	
Requirements for public protection (demonstration) (in the presence)	Requirements for public protection are formulated in the Regulations on EC and guidelines for the completion of qualification (diploma) works.

IV REQUIREMENTS FOR HAVING AN INTERNAL QUALITY ASSURANCE SYSTEM FOR HIGHER EDUCATION

Determined in accordance with European Standards and Recommendations on Quality Assurance in Higher Education (ESG) and Article 16 of the Law of Ukraine "On Higher Education"

Components of the internal quality assurance system of higher education	Definitions, references and related documents
Principles and procedures for quality assurance of education	<p>Provisional Regulation on the Organization of the Educational Process at the State Higher Educational Institution of Ukrainian State University of Chemical Technology (Order of the Rector of the SHEI USUCT № 290 of 30.11.2015);</p> <ul style="list-style-type: none"> - Regulations on diploma with honors of Ukrainian State University of Chemical Technology (Order of the Rector of the SHEI USUCT from February 25, 2016 No. 55); - Regulations on the procedure for setting up and organizing the work of the examination commission at the SHEI USUCT (Order of the Rector No. 68 of 01.04.2015, No. 68); - Regulations on the development of approval and review of work programs of educational disciplines (Order of the Rector of SHEI USUCT № 291 of 01.12.15); - Provisional provision on the system of internal quality assurance of the educational activity of the University and the quality of higher education (Order of the Rector of the SHEI USUCT from 27.02.17 №52)
Monitoring and periodic review of educational programs	<ul style="list-style-type: none"> - Provisional Regulation on the Organization of the Educational Process at the State Educational Institution of the State Pedagogical University (Order of the Rector of the SHEI USUCT № 290 of 30.11.2015);
Annual evaluation of higher education applicants	<ul style="list-style-type: none"> - Regulations on diploma with honors of the SHEI USUCT (Order of the Rector SHEI USUCT from February 25, 2016 No. 55);

<p>Annual evaluation of scientific-pedagogical and pedagogical staff of higher education institution</p>	<p>Regulations on the Rector's Control Commission of pedagogical skills of scientific and pedagogical workers of the University (Order of the Rector SHEI USUCT of 04.04.2016. №85), Procedure of application of the rating system of evaluation of the activity of scientific and pedagogical workers of the SHEI USUCT.2011 № 147), Procedure of application of rating system of evaluation of activity of departments and faculties of SHEI USUCT (Rector's Order dated 04.06.2010 № 209).</p> <p>The regular publication of the results of such assessments on the official website of the higher education institution, on information stands and in any other way</p>
<p>Improvement of qualification of scientific-pedagogical, pedagogical and scientific workers</p>	<p>Improvement of qualification of scientific and pedagogical staff is carried out in accordance with the provision approved by the order of MESU dated 24.01.2013. No. 48 and the Regulations on professional development and training of pedagogical and scientific-pedagogical employees of the SHEI USUCT</p>
<p>Availability of necessary resources to organize the educational process</p>	<p>Educational and methodological, logistical and personnel support of the licensed conditions (Resolution of the CM dated December 30, 2015 No. 1187) of educational activity.</p>
<p>Availability of information systems for effective management of the educational process</p>	<p>The Temporary Provision on the Organization of the Educational Process at the State Higher Educational Institution of Ukrainian State University of Chemical Technology (Order of the Rector of the SHEI USUCT № 290) is supported by the Information-analytical system of control of the educational process, which consists of subsystems: Applicant, Educational process.</p>
<p>Publicity of information on educational programs, degrees of higher education and qualification</p>	<p>Information about educational programs, degrees of higher education and qualification is publicly available and fully available on the official website of the University https://udhtu.edu.ua/</p>
<p>Preventing and detecting academic plagiarism</p>	<p>Verification of completeness of tasks, quality of work in general and its verification for plagiarism is carried out by the teacher - the leader of course or diploma work (project) in the established order</p>

	using the appropriate software.
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