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

Rector SHEI USUCT
_____ K.M. Sukhyi
«____»_____2019.

EDUCATION PROFESSIONAL PROGRAM

The first (bachelor) level
(name of higher education level)

Bachelor
(назва ступеня, що присвоюється)

BRANCH OF KNOWLEDGE **16 Chemical and bioengineering**
(code and name of the field of knowledge)

СПЕЦІАЛЬНІСТЬ **161 Chemical technology and engineering**
(specialty code and name)

SELECTION BLOCK **Chemical technologies of fuel and carbon materials**

Approved at the meeting of the
Academic Council SHEI USUCT
from «_____»_____2019.
protocol №____

Dnipro
2019

Letter of approval
EDUCATIONAL PROFESSIONAL PROGRAM

Higher education level	The first (bachelor) level
Branch of knowledge	16 Chemical and bioengineering
Specialty	161 Chemical technology and engineering
Educational program	Chemical technology and engineering
Selection block	Chemical technologies of fuel and carbon materials
« AGREED »	« DEVELOPERS »
First Vice-Rector, Chairman of the Scientific and Methodological Council SHEI USUCT _____ O.V.Zaichuk (signature) (surname and initials) „_____”_____2019	Project Team Leader _____ O.V.Tertyshna (signature) (surname and initials) „_____”_____2019.
Head of educational and scientific center _____ R.V.Smotraiev (signature) (surname and initials) „_____”_____2019.	Project team members _____ V.O.Holovenko (signature) (surname and initials) „_____”_____2019.
Scientific and methodical department _____ H.V.Fomenko (signature) (surname and initials) „_____”_____2019.	_____ N.L.Hurevina (signature) (surname and initials) „_____”_____2019.
Dean of the Faculty _____ V.I.Ovcharov (signature) (surname and initials) „_____”_____2019.	
Head of Department _____ _____ (signature) (surname and initials) „_____”_____2019.	The educational and professional program was enacted by order of the rector №___ from «___»_____2019.

I. PROFILE OF THE BACHELOR EDUCATION PROFESSIONAL PROGRAM

in the specialty "Chemical Technology and Engineering"

Program Profile (General Information)	
Full name of the qualification in the original language	Bachelor of Science in Chemical Technology and Engineering Educational Program: Chemical Technology and Engineering
The official name of the educational program	Bachelor's degree program in Chemical Technology and Engineering
Type of diploma and scope of educational program	Bachelor's Degree in Chemical Technology and Engineering, single (double, joint with relevant contracts, training programs); 240 ECTS credits
Full name of higher education institution awarding the qualification	State higher education institution «Ukrainian State University of Chemical Technology»
Accrediting organization	Accreditation Commission of Ukraine («Educational-methodical center on quality of education»).NAHEQA.
Accreditation period	Accredited on August 5, 2014. Series ND II, № 0471214, the validity of the accreditation certificate until July 1, 2019.
Cycle / level	National Qualifications Framework of Ukraine – 6 level, FQ-EHEA – the first cycle, EQF-LLL – Level 6
Prerequisites	The first (bachelor) level
Language (s) of teaching	Ukrainian language
A	**The purpose of the educational program**
The purpose of the educational program	Provide students with the acquisition of knowledge, skills and understanding in the field of chemical technology that will enable them to perform original research or work independently in production.
B	**Characteristics of the educational program**
Subject area (field of knowledge, specialty)	Branch of knowledge 16 - *Chemical and bioengineering**:*** specialty 161 - *Chemical technology and engineering* educational program - *Chemical Technology and Engineering*
The main focus of the program and specialization	General higher education in the field of chemical technology
Orientation of the program	The research line is scientifically oriented, the teaching and application lines are practically oriented.
Features and differences	The program is scientifically or practically oriented, defining the type of practice (module 1 or module 2 in the cycle of vocational training courses is selected).

C	Ability to find employment and further education
Employment ability	Jobs in high-tech chemical-technology companies, chemical industry and related industries; teachers of educational establishments of different levels of education, scientists in research organizations, scientific centers, laboratories.
Further training	Master's degree in chemical technology at the second level.
D	**Teaching style and teaching methodology**
Approaches to teaching and learning	A combination of lectures, practicals and seminars, experimental research in laboratories, writing of course projects or papers, self-study, preparation of qualification work.
Assessment methods	Written and oral examinations, tests, presentations, defense of bachelor's qualification work.
E	**Software competencies**
Integral competence	Bachelor (Level 6): Ability to solve complex specialized problems and practical problems in chemical technology and engineering or in the process of training, which involves the application of certain theories and methods of chemical technology and engineering and is characterized by complexity and uncertainty of the conditions.
General competencies (GC)	GC-1. Ability to apply knowledge in practical situations.Ability to plan and manage time. GC-2. Ability to plan and manage time.Ability to write and oral communication in Ukrainian (professional orientation). GC-3. Knowledge and understanding of the subject area and understanding of professional activity. *GC-4.* Ability to write and oral communication in Ukrainian (professional orientation). GC-5. Ability to communicate in a foreign language.. GC-6. Skills of using information and communication technologies. GC-7. Ability to learn and be modernly trained. GC-8. Ability to be critical and self-critical. GC-9. Interpersonal skills. GC-10. Knowledge of national history, culture, economy and law, sufficient to understand the causal relationships of the development of society and the ability to use them in professional and social activities. GC-11. Valuation and Respect for Diversity and Multiculturalism. GC-12. Security commitment. GC-13. Determination and persistence on the tasks and duties taken. GC-14. The desire to save the environment. GC-15. Ability to use basic knowledge in basic sciences to the extent necessary for the theoretical development of professionally oriented disciplines and the solution of practical problems in

	chemical technology and engineering.
Special (professional, substantive) competencies (SC)	SC-1. Ability to demonstrate knowledge and understanding of the basic facts, concepts, principles and theories related to the objects of chemical technology. SC-2. Ability to interpret data obtained as a result of laboratory observations and measurements in terms of their significance and to correlate them with the corresponding theory. SC-3. Ability to possess methods of observation, description, identification and classification of objects of chemical technology and industrial products. SC-4. Sufficient English knowledge to be able to read, write and present documents, and communicate with other scholars. SC-5. Skills for the calculation and processing of data relating to chemical information. SC-6. Information retrieval skills in relation to primary and secondary sources of information, including in information retrieval systems with on-line search. Ability to choose and use appropriate equipment, tools and methods for the implementation and control of chemical production. SC-7. Ability and use of modern computer and communication methods in chemical technology. Ability to use computer skills at the user level, use information technology to solve experimental and practical tasks in the field of professional activity. SC-8. Sociability, concerning the ability to interact with other people and participate in teamwork. SC-9. Estimating skills, which include aspects such as error analysis, accuracy estimation, and the correct use of measurement units. SC-10. Skills for the safe handling of chemical materials, taking into account their physical and chemical properties, including any particular hazards associated with their use. SC-11. The learning skills necessary for continuous professional development. SC-12. Ability to arrange the results of research activities in the form of a scientific report, report, article. SC-13. Ability to use theoretical knowledge and practical skills of natural sciences for mastering the basics of theory and methods of chemical and technological research SC-14. Ability to use professionally profiled knowledge, skills and abilities in the field of natural sciences, general chemical technology, processes and apparatuses of chemical industries for the analysis, evaluation and design of technological processes and equipment using traditional and alternative raw materials.
F	**Program learning outcomes**
Learning outcomes in	LOCF-1. To select and apply knowledge and understanding in

the cognitive (cognitive) field (LOCF)	chemistry for the solution of qualitative and quantitative problems in chemical production, and in particular in the production of traditional and alternative fuel oil and lubricants
	LOCF-2. Classify and analyze problems of different nature and draw up a plan for their solution
	LOCF-3. Evaluate the impact of technological factors on the composition of the final product
	LOCF-4. Evaluate the risks associated with the use of chemicals and laboratory studies and quality control of the raw materials of chemical processes and end products of chemical technology
	LOCF-5. To summarize the data obtained from laboratory observations and measurements in terms of their significance and to correlate them with the corresponding theory.
	LOCF-6. Establish the connection of the obtained data with the results of mathematical modeling of chemical and chemical-technological processes
	LOCF-7. Explain the causes of the risks associated with the use of chemicals and laboratory procedures
	LOCF-8. To carry out qualitative and quantitative analysis of substances of inorganic, organic and biological origin, using appropriate methods of general and inorganic, organic, analytical, physical and colloidal chemistry.
	LOCF-9. Use modern information and communication technologies to search, calculate, create graphic and text documents, for mathematical analysis and statistical processing in research and design.
	LOCF-10. To carry out a feasibility study of chemical production (identification of the need for the target product and calculation of production capacity), to have methods of improving the technological process, to understand the theoretical and practical approaches to the creation and management of production
	LOCF-11. To make a choice of the corresponding technological equipment and to graphically depict the technological process using automated design systems for the development of technological and hardware schemes of chemical and technological manufactures.
Learning outcomes in the value-motivational sphere (LVMS)	*LVMS-1.* Meet the requirements of professional ethics in the workplace
	LVMS-2. Participate in discussing the results of various types of work (research, search, design, etc.)
	LVMS -3. Show a desire to work independently
	LVMS-4. Ask questions in discussions with colleagues and lecturers
	LVMS-5. Form the same attitude towards students with different opportunities in the group
	LVMS-6. Demonstrate acquired foreign language skills when creating scientific and project documentation

	LVMS-7. Present results of various types of work (research, search, design, etc.) to the native language and one of the main European languages.
	LVMS -8. Organize safety precautions in the workplace
	LVMS -9. Understand scientific and technical texts in native and one of the major European languages
Results of training in the psychomotor sphere (RPS)	*RPS-1.* Execute the experiment technique, repeatedly reproduce the results of experiments to obtain reliable values and calculate the experiment error.
	RPS -2. Maintain safety precautions in the workplace

II. 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

№	Subjects	Credit	Hours	Semester	Tetramester	Final control
	1. COMPULSORY EDUCATIONAL DISCIPLINES					
	1.1. 1.1. General training cycle (generates competencies)					
1.1.1	Ukrainian as a Foreign Language	*51*	1530	1,2,3,4, 5,6,7	1,2,3,4,5,6,7,8, 9,10,11,12, 13,14	exam
1.1.2	Higher mathematics	*13*	390	1,2	1,2,3,4	exam
1.1.3	Computational Mathematics and Programming	*6*	180	3	5,6	exam
1.1.4	Physics	*12*	360	2,3	3,4,5,6	exam
1.1.5	General and inorganic chemistry	*14*	420	1,2	1,2,3,4	exam
1.1.6	Organic chemistry	*9*	270	3,4	5,6,7,8	exam
1.1.7	Ecology	*2*	60	1	1	test
	TOGETHER on cycle 1.1	***107***	***3210***			
	1.2. Training cycle (forms special (professional) competences)					
1.2.1	Engineering and computer graphics	*4*	120	1,2	1,2,3,4	differentiated test
1.2.2	Processes and apparatus of chemical industries	*8*	240	5,6	9,10,11,12	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	*4*	120	5	9,10	differentiated test
1.2.7	Analytical chemistry	*6*	180	4	7,8	exam
1.2.8	Instrumental methods of chemical analysis	*4*	120	5	9,10	differentiated test
1.2.9	Physical chemistry	*15*	450	4,5	7,8,9	exam
1.2.10	Surface Phenomena and Disperse Systems (Colloid Chemistry)	*3*	90	5	10	exam
1.2.11	Fundamentals of chemical production design	*6*	180	8	15	exam
1.2.12	Life Safety	*2*	60	1	1	test
1.2.13	Basics of labor protection	*3*	90	5	10	exam
1.2.14	Internship	*6*	180	8	16	differentiated test
1.2.15	Preparation of Bachelor's Degree and State Certification (SC)	*9*	270	8	16	SC
	TOGETHER on cycle 1.2	***85***	***2550***			
	A MANDATORY PART TOGETHER	***192***	***5760***			
2. SELECTIVE COURSES						
2.1. General training cycle (generates competencies)						
	TOGETHER on cycle 2.1	***0***	***0***			
2.2. Training cycle (forms special (professional) competences)						
2.2.1	Physics and chemistry of fossil fuels	*9*	270	6	11,12	exam
2.2.2	Theoretical bases of technology of processing of combustible minerals	*3*	90	6	12	differentiated test
2.2.3	Primary oil and gas processing technology	*8*	240	6	11,12	exam
2.2.4	Oil refining technology	*7*	210	7,8	13,14,15	exam
2.2.5	Oil refining technology	*4*	120	8	15	exam
2.2.6	Technology of coke production	*8*	240	7,8	13,14,15	exam
2.2.7	Technologies for the production of alternative fuels	*4*	120	7	13,14	exam
2.2.8	Equipment for the production of fossil fuel processing	*5*	150	7	13,14	exam
	TOGETHER on cycle 2.2	***48***	***1440***			
	SAMPLE PART TOGETHER	***48***	***1440***			

	TOTAL VOLUME	***240***	***7200***			

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

№	Preparation cycle	Higher education student load (credits /%)		
		Compulsory components of a professional education program	Selective components of a professional education program	Total for the whole term of study
1.	General training cycle (generates competencies)	107/44,6	-/-	107/ 44,6
2.	Training cycle (forms special (professional) competences)	85/35,4	48/20	133/55,4
Total for the whole term of study		192/ 80	48/ 20	240/ 100

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

Training cycles	Competency Codes	Learning outcomes codes	List of disciplines	ECTS credits
1	2	3	4	5
1.1 General training cycle (generates competencies)	GC -1, GC -3, GC -4, GC -9, GC -11	LVMS -4, LVMS -6, LVMS -7, LVMS -8, LVMS -9, LOCF-9	1.1.1 Ukrainian as a Foreign Language	*51*
	GC -1, GC -3, GC -8, GC -15, SC -1, SC -2, SC -13	LOCF-6, LOCF-9, RPS -1	1.1.2 Higher mathematics	*13*
	GC -1, GC -2, GC -3, GC -6, GC -8, GC -13, GC -15, SC -1, SC -2, SC -5	LOCF-6, LOCF-9, LOCF-8, RPS -1	1.1.3 Computational Mathematics and Programming	*6*
	GC -1, GC -2, GC -3, GC -6, GC -8, GC -12, GC -13, GC -15, SC -1, SC -2, SC -13	LOCF-6, LOCF-9, LOCF-8, RPS -1	1.1.4 Physics	*12*
	GC -1, GC -3, GC -8, GC -12, GC -13, GC -15, SC -1, SC -2, SC -3, SC -10, SC -13	LOCF-1, LOCF-3, LOCF-8, LOCF-10, LVMS -4, RPS -1, RPS -2	1.1.5 General and inorganic chemistry	*14*
	GC -1, GC -3, GC -8, GC -12, GC -13, GC -15, SC -1, SC -2, SC -3, SC -10, SC -13	LOCF-1, LOCF-3, LOCF-8, LOCF-10, LVMS -4, RPS -1, RPS -2	1.1.6 Organic chemistry	*9*
	GC -1, GC -3, GC -8, GC -12, GC -13, GC -14, GC -15, SC -2	LOCF-1, LOCF-3, LOCF-4, LOCF-8, LOCF-10, LVMS -4, LVMS -8, RPS -1, RPS -2	1.1.7 Ecology	*2*
			TOTAL 1.1	***107***
1.2 Training cycle (forms special (professional) competences)	GC -1, GC -2, , GC -7, GC -13, SC -11, SC -12	LVMS -2, LVMS -3, LVMS -4	1.2.1 Engineering and computer graphics	*4*
	GC -1, GC -2, GC -3, GC -6, 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 -8, SC -9, SC -10, SC -11, SC -12, SC -13, SC -14	LOCF -1, LOCF -2, LOCF -3, LOCF -7, LVMS -1, LVMS -2, LVMS -3, LVMS -8, RPS -1, RPS -2	1.2.2 Processes and apparatus of chemical industries	*8*

	GC -1, GC -2, GC -3, GC -6, 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 -8, SC -9, SC -10, SC -11, SC -12, SC -13, SC -14	LOCF -1, LOCF -2, LOCF -3, LOCF -7, LVMS -1, LVMS -2, LVMS -3, LVMS -8, RPS -1, RPS -2	1.2.3 General chemical technology	*8*
	GC -1, GC -2, GC -3, GC -5 GC -6, GC -7, GC -8, GC -9, SC -1, SC -2, SC -3, SC -4, SC -5, SC -6, SC -7, SC -8, SC -11	LOCF -1, LOCF -6, LOCF -9, LVMS -2, LVMS -3, LVMS -4, LVMS -5, LVMS -6	1.2.4 4 Mathematical modeling and optimization of chemical technology objects	*4*
	GC -1, GC -2, GC -3, GC -6, 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 -8, SC -9, SC -10, SC -11, SC -12, SC -13, SC -14	LOCF -1, LOCF -2, LOCF -3, LOCF -7, LOCF -10, LVMS -1, LVMS -2, LVMS -3, LVMS -8, RPS -1, RPS -2	1.2.5 Process control and control	*3*
	GC -1, GC -2, GC -3, GC -4, GC -6, GC -7, GC -8, GC -9, GC -10, GC -11, GC -13, GC -15, SC -3, SC -4, SC -6, SC -7, SC -8, SC -11, SC -13	LVMS -1, LVMS -3, LVMS -4, LVMS -5, LOCF -10	1.2.6 Economics, organization and management of enterprises	*4*
	GC -1, GC -2, GC -3, GC -4, GC -6, GC -7, GC -8, GC -9, GC -11, GC -12, GC -13, GC -14, SC -1, SC -2, SC -3, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12, SC -13	LOCF -1, LOCF -3, LOCF -8, LOCF -10, LVMS -4, RPS -1, RPS -2	1.2.7 Analytical chemistry	*6*
	GC -1, GC -2, GC -3, GC -4, GC -6, GC -7, GC -8, GC -9, GC -11, GC -12, GC -13, GC -14, SC -1, SC -2, SC -3, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12, SC -13	LOCF -1, LOCF -3, LOCF -8, LOCF -10, LVMS -4, RPS -1, RPS -2	1.2.8 Instrumental methods of chemical analysis	*4*
	GC -1, GC -2, GC -3, GC -4, GC	LOCF -1, LOCF -3, LOCF -	1.2.9 Physical chemistry	*15*

	-6, GC -7, GC -8, GC -9, GC -11, GC -12, GC -13, GC -14, SC -1, SC -2, SC -3, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12, SC -13	8, LOCF -10, LVMS -4, RPS -1, RPS -2		
	GC -1, GC -2, GC -3, GC -4, GC -6, GC -7, GC -8, GC -9, GC -11, GC -12, GC -13, GC -14, SC -1, SC -2, SC -3, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12, SC -13	LOCF -1, LOCF -3, LOCF -8, LOCF -10, LVMS -4, RPS -1, RPS -2	1.2.10 Surface Phenomena and Disperse Systems (Colloid Chemistry)	*3*
	GC 1, GC -2, GC -3, GC -4, GC -6, GC -7, GC -12, GC -14, GC -15, SC -1, SC -3, SC -4, SC -6, SC -7, SC -8, SC -10, SC -11, SC -14	LOCF -1, LOCF -2, LOCF -3, LOCF -4, LOCF -7, LOCF -9, LOCF -10, LOCF -11, LVMS -2, LVMS -3, LVMS -6, LVMS -7, LVMS -9	1.2.11 Fundamentals of chemical production design	*6*
	GC -1, GC -4, GC -7, GC -8, GC -12, GC -13, SC -10	LOCF -2, LOCF -4, LOCF -7, LVMS -1, LVMS -8, LVMS -9, RPS -2	1.2.12 Life Safety	2
	GC -3, GC -4, GC -5, GC -8, GC -10, GC -11, GC -13, GC -14, GC -15, SC -2, SC -4, SC -6, SC -7, SC -10, SC -11, SC -14	LOCF -1, LOCF -3, LOCF -4, LOCF -6, LOCF -7, LOCF -9, LOCF -10, LVMS -4, LVMS -5, LVMS -6, LVMS -7, LVMS -9	1.2.13 Basics of labor protection	*3*
	GC -1, GC -2, GC -3, GC -6, GC -7, GC -8, GC -10, GC -11, GC -12, GC -13, SC -3, SC -8, SC -10, SC -12, SC -14	LOCF -3, LOCF -7, LOCF -11, LVMS -1, LVMS -2, LVMS -3, LVMS -5, LVMS -6, LVMS -7, LVMS -9	1.2.14 Internship	*6*
	GC -1, GC -2, GC -3, GC -4, GC -5, GC -6, GC -7, GC -8, GC -9, GC -10, GC -11, GC -	LOCF -1, LOCF -2, LOCF -3, LOCF -5, LOCF -6, LOCF -9, LVMS -1,	1.2.15 Preparation of Bachelor's Degree and State Certification (SC)	*9*

	12, GC -14, SC -1, SC -2, SC -3, SC -4, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12	LVMS -2, LVMS -3, LVMS -4, LVMS -5, LVMS -6, LVMS -7, RPS -1, RPS -2		
			TOTAL 1.2	***85***
2.1. General training cycle (generates competencies)				
			TOTAL 2.1	***0***
2.2. Training cycle (forms special (professional) competences)	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10, SC -11	LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -5, LVMS -6, RPS -2	2.2.1 Physics and chemistry of fossil fuels	*9*
	GC -1, GC -2, GC -3, GC -6, GC -7, GC -8, GC -9, GC -10, GC -11, GC -12, GC -13, GC -14, GC 15, SC -1, SC -2, SC -3, SC -5, SC -6, SC -7, SC -8, SC -9, SC -10, SC -11, SC -12, SC -13, SC -14	LOCF -1, LOCF -2, LOCF -5, LOCF -6, LOCF -7, LOCF -9, LVMS -2, LVMS -3, LVMS -4, LVMS -7, LVMS -8, RPS -1	2.2.2 Theoretical bases of technology of processing of combustible minerals	*3*
	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10, SC -11	LOCF -1, LOCF -2, LOCF -4, LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -6, LVMS -7	2.2.3 Primary oil and gas processing technology	*8*
	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10, SC -11	LOCF -1, LOCF -2, LOCF -4, LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -6, LVMS -7	2.2.4 Oil refining technology	*7*
	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10,	LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -5, LVMS -6	2.2.5 Chemotomology	*4*

	SC -11			
	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10, SC -11	LOCF -1, LOCF -2, LOCF -4, LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -6, LVMS -7	2.2.6 Technology of coke production	*8*
	GC -1, GC -2, GC -6, GC -7, GC -8, GC -11, GC -13, GC -14, SC -2, SC -4, SC -5, SC -7, SC -9, SC -10, SC -11	LOCF -1, LOCF -2, LOCF -4, LOCF -7, LOCF -8, LOCF -10, LVMS -1, LVMS -2, LVMS -6, LVMS -7	2.2.7 Technologies for the production of alternative fuels	*4*
	GC -1, GC -3, GC -4, GC -12, GC -14, GC -15, SC -1, SC -4, SC -6, SC -8, SC -10, SC -11, SC -14	LOCF -1, LOCF -2, LOCF -9, LOCF -11, LVMS -1, LVMS -3, LVMS -6, LVMS -9	2.2.8 Equipment for the production of fossil fuel processing	*5*
			TOTAL 2.2	***48***
			TOTAL	***240***

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

Code of discipline for the curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	1.2.7	1.2.8	1.2.9	1.2.10	1.2.11	1.2.12	1.2.13	1.2.14	1.2.15	2.2.1	2.2.2	2.2.3	2.2.4	2.2.5	2.2.6	2.2.7	2.2.8
GC -1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
GC -2			+	+				+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	
GC -3	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+		+	+	+		+					+
GC -4	+												+	+	+	+	+	+	+	+		+							+
GC -5											+									+		+							
GC -6			+	+					+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	
GC -7								+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	
GC -8		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	
GC -9	+										+		+	+	+	+	+					+		+					
GC -10													+							+	+	+		+					
GC -11	+												+	+	+	+	+			+	+	+	+	+	+	+	+	+	
GC -12				+	+	+	+		+	+		+		+	+	+	+	+	+		+	+		+					+
GC -13			+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	
GC -14							+		+	+		+		+	+	+	+	+		+		+	+	+	+	+	+	+	+
GC -15		+	+	+	+	+	+		+	+		+	+			+		+		+				+					+
SC -1		+	+	+	+	+			+	+	+	+		+	+	+	+	+				+		+					+
SC -2		+	+	+	+	+	+		+	+	+	+		+	+	+	+			+		+	+	+	+	+	+	+	
SC -3					+	+			+	+	+	+	+	+	+	+	+	+			+	+		+					
SC -4											+		+					+		+		+	+		+	+	+	+	+
SC -5			+						+	+	+	+		+	+	+	+					+	+	+	+	+	+	+	
SC -6									+	+	+	+	+	+	+	+	+	+		+		+		+					+
SC -7									+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	
SC -8									+	+	+	+	+	+	+	+	+	+			+	+		+					+
SC -9									+	+	+	+		+	+	+	+					+	+	+	+	+	+	+	

SC -10					+	+			+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SC -11								+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+
SC -12								+	+	+		+		+	+	+	+				+	+		+						
SC -13		+		+	+	+			+	+		+	+	+	+	+		+						+						
SC -14									+	+		+								+	+			+						+

Table 5. Software Matrix for Software Learning Outcomes with relevant components Educational and professional program

Code of discipline for the curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	1.2.7	1.2.8	1.2.9	1.2.10	1.2.11	1.2.12	1.2.13	1.2.14	1.2.15	2.2.1	2.2.2	2.2.3	2.2.4	2.2.5	2.2.6	2.2.7	2.2.8
LOCF -1.					+	+	+		+	+	+	+		+	+	+	+	+		+		+		+	+	+		+	+	+
LOCF -2.									+	+		+						+	+			+		+	+	+		+	+	+
LOCF -3.					+	+	+		+	+		+		+	+	+	+	+		+	+	+								
LOCF -4.							+											+	+	+					+	+		+	+	
LOCF -5.																						+		+						
LOCF -6.		+	+	+		+					+									+		+		+						
LOCF -7.									+	+		+						+	+	+	+		+	+	+	+	+	+	+	
LOCF -8.			+	+	+	+	+							+	+	+	+						+		+	+	+	+	+	
LOCF -9.	+	+	+	+							+							+		+		+		+						+
LOCF -10.					+	+	+					+	+	+	+	+	+	+		+			+		+	+	+	+	+	
LOCF -11.																	+	+			+									+
LVMS -1.									+	+		+	+						+		+	+	+		+	+	+	+	+	+
LVMS -2.								+	+	+	+	+						+			+	+	+	+	+	+	+	+	+	
LVMS -3.								+	+	+	+	+	+					+			+	+		+						+
LVMS -4.	+				+	+	+	+			+		+	+	+	+	+			+		+								
LVMS -5.											+		+							+	+	+	+				+			
LVMS -6.											+							+		+	+	+	+		+	+	+	+	+	+
LVMS -7.																		+		+	+	+		+	+	+		+	+	

LVMS 8							+		+	+		+							+					+						
LVMS -9																		+	+	+	+									+
RPS -1.		+	+	+	+	+	+		+	+		+		+	+	+	+					+		+						
RPS -2.					+	+	+		+	+		+		+	+	+	+		+			+	+							

III - FORMS OF CERTIFICATES FOR HIGHER EDUCATION APPLICANTS

Forms of attestation of applicants for higher education	The mandatory form of state certification is the implementation and protection of qualification (diploma) works (projects). 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 training of bachelors is the technology of implementation and protection of qualification (diploma) works (projects), which is defined in the following documents: Regulations on EC, Guidelines for the implementation of qualification (diploma) works (projects)).
Requirements for final qualification work (in the presence)	Requirements for the final qualification work are set out in the Guidelines for the completion of qualification (diploma) works (projects). 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 the EC and guidelines for the completion of qualification (diploma) works (projects).

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 in education	- Law of Ukraine "On Higher Education" of 01.07.2014. № 1556-VII; - Provisional provision for the organization of educational process in SHEI USUCT (Order of the Rector SHEI USUCT of 30.11.2015 № 290); - Honors Diploma Regulations SHEI USUCT (Order of the Rector SHEI USUCT of 25.02.2016 № 55); - Regulations on the procedure for setting up and organizing the work of the examination commission in SHEI USUCT (Order of the Rector SHEI USUCT of 01.04.2015. № 68); - Regulations for the development of approval and review of work programs of the disciplines (Order of the Rector SHEI USUCT of 01.12.15 №291)
Monitoring and periodic review of educational programs	Annual monitoring of requirements of industry and labor market, review of educational programs, work curricula, work programs of educational disciplines. Approval of the composition of project teams for the development of educational programs (Order of the Rector SHEI USUCT of 10.03.2016 № 74)
Annual evaluation of higher education applicants	Regulation on the organization of the rectorial control of the quality of education (Order of the Rector of 17.03.2014 p. №78)
Annual evaluation of scientific-pedagogical and pedagogical staff of higher education institution	Regulations on the commission of the rectorial control of pedagogical skills of scientific and pedagogical workers of the University (Order of the Rector SHEI USUCT of 04.04.2016p. №85), The order of application of the rating system of evaluation of activity of scientific and pedagogical workers SHEI USUCT (Order of the Rector 04.06.2010. № 209 with changes to the order from 09.06.2011. № 147), The procedure for applying the rating system for evaluating the activity of departments and faculties SHEI USUCT

	(Order of the Rector 04.06.2010 . № 209). Regular publication of the results of such assessments on the official website of the institution of higher education, on information stands and in any other way
Improvement of qualification of scientific-pedagogical, pedagogical and scientific workers	Training of scientific and pedagogical staff shall be upgraded according to the provision approved by the order MESU of 24.01.2013p. № 48 and Regulations on training and training of pedagogical and scientific-pedagogical staff SHEI USUCT (Order of the Rector SHEI USUCT of 28.05.2016. №105)
Availability of necessary resources to organize the educational process	Educational, logistical and personnel support meets the license requirements (Resolution of the Cabinet of Ministers of Ukraine from 30.12.2015. № 1187) educational activities. License Series AE №636496. Certificates in the areas of training and specialties.
Availability of information systems for effective management of the educational process	Provisional provision for the organization of educational process in SHEI USUCT (Order of the Rector SHEI USUCT of 30.11.2015 № 290) is supported by the Information-analytical system of control of the educational process, which consists of the subsystems: Entrant, Educational process.
Publicity of information on educational programs, degrees of higher education and qualification	Information about educational programs, higher education degrees and qualifications is publicly available and fully available on the official web-portal of the University http://udhtu.com.ua
Preventing and detecting academic plagiarism	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 using the appropriate software.