

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

Rector of SHEI USUCT

\_\_\_\_\_  
O.A. Pivovarov

" \_\_\_\_ " \_\_\_\_\_ 2016

## EDUCATION PROFESSIONAL PROGRAM

**Second (master's) level**

\_\_\_\_\_  
(name of higher education level)

**MSc**

\_\_\_\_\_  
(name of degree awarded)

**KNOWLEDGE FIELD**      **1 8 Manufacturing and  
Technology**

\_\_\_\_\_  
(code and domain name)

**SPECIALTY** **1 86 Publishing and printing**

\_\_\_\_\_  
(code and specialty name)

(in the presence)

Approved at the meeting of  
the Academic Council of the  
State University of Chemical  
Technology  
from \_\_\_\_\_  
2016 Protocol No. \_\_\_\_\_

Dnipro  
2016

Letter of approval

EDUCATIONAL PROFESSIONAL PROGRAM

Higher education level	Second (master's) level
Branch of knowledge	1 8 Manufacturing and Technology
Specialty	1 86 Publishing and Printing
<b>"AGREED"</b>	<b>"DEVELOPERS"</b>
<p>First Vice-Rector, Chairman of the Scientific and Methodological Council of the State University of chemical technology</p> <p>_____ <u>Goleus VI</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>	<p>Project Team Leader</p> <p>_____ <u>Sukhyi K.M.</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>
<p>Head of NOC</p> <p>_____ <u>Smotraev RV</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>	<p>Project team members</p> <p>_____ <u>Shapka V.H.</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>
<p>Scientific and methodical department</p> <p>_____ <u>Fomenko GV</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>	<p>_____ <u>Sverdlikovska O.S.</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>
<p>Dean of the HMC Faculty</p> <p>_____ <u>Ovcharov VI</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>	
<p>Head of Department</p> <p>_____ <u>Burmistr MV</u>  <small>(signature) (surname and initials)</small>  " ____ " _____ 2016</p>	<p>The educational-professional program was enacted by order of the Rector No. ____ of ____ _____ 2016.</p>

**I. PROFILE OF THE MASTER'S EDUCATION PROFESSIONAL  
PROGRAM "Publishing and Printing"  
specialty " Publishing and Printing "**

<b>Program Profile (General Information)</b>	
<b>Full name of the qualification in the original language</b>	MSc in Publishing and Printing
<b>The official name of the educational program</b>	Educational and professional master's program in publishing and printing
<b>Type of diploma and scope of the educational program</b>	Diploma Master of Publishing and Printing , single ( double, shared with the relevant agreements, training programs) ; 90 ECTS credits
<b>Full name of higher education institution awarding the qualification</b>	State Higher Educational Institution "Ukrainian State University of Chemical Technology"
<b>Accrediting organization</b>	Accreditation Commission of Ukraine (State Educational and Training Center for Educational Quality) . LEFT .
<b>Accreditation period</b>	Accredited in 20 13 with C Certificate of Accreditation ND - IV , № 0423208, validity period - till 1.07.2017.
<b>Cycle / level</b>	NQF of Ukraine - Level 7, FQ-EHEA - Second Cycle, EQF-LLL - Level 7
<b>Prerequisites</b>	The first (bachelor) level
<b>Language (s) of teaching</b>	Ukrainian language
<b>AND</b>	
	<b>The purpose of the educational program</b>
<b>The purpose of the educational program</b>	Provide students with knowledge, skills and understanding in manufacturing and technology that will enable them to perform original research or work independently in production.
<b>B.</b>	
	<b>Characteristics of the educational program</b>
<b>Subject area (field of knowledge, specialty)</b>	Knowledge Area 1 8 - <i>Manufacturing &amp; Technology</i> : specialty 1 86 - <i>Publishing and printing</i>
<b>The main focus of the program and specialization</b>	General higher education in Manufacturing and Technology .
<b>Orientation of the program</b>	The research line is scientifically oriented, the teaching and application lines are practically oriented.
<b>Features and differences</b>	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).
<b>WITH</b>	<b>Ability to find employment and further education</b>
<b>Employment ability</b>	Jobs in high-tech companies of chemical and technological profile, publishing and printing industries, enterprises of the chemical production sector and related industries; teachers of educational establishments of different levels of education, scientists in research organizations, scientific centers, laboratories.
<b>Further training</b>	Third-level training in doctoral programs in manufacturing and technology .
<b>D</b>	<b>Teaching style and teaching methodology</b>
<b>Approaches to teaching and learning</b>	A combination of lectures, practicals and seminars, experimental research in laboratories, writing of course projects or papers, self-study, preparation of qualification work.
<b>Assessment methods</b>	Written and oral examinations, tests, presentations, defense of master's qualification work.
<b>IS</b>	<b>Software competencies</b>
<b>Integrated Competence (INT)</b>	<i>Master's Degree (Level 7): The ability to solve complex problems and problems in a particular area of professional activity or in a learning process that involves research and / or innovation and is characterized by uncertain conditions and requirements</i>
<b>General Competencies (GC)</b>	<p>ZK-1. Ability to think abstractly, analyze and synthesize.</p> <p>ZK-2. Ability to apply knowledge in practical situations.</p> <p>ZK-3. Knowledge and understanding of the subject area and understanding of the profession.</p> <p>CL 4. Ability to communicate in the mother tongue, both orally and in writing.</p> <p>ZK-5. Ability to speak a second language.</p> <p>ZK-6. Use of information and communication technologies .</p> <p>ZK-7. Ability to conduct research at the appropriate level .</p> <p>ZK-8. Ability to search, process and analyze information from various sources.</p> <p>ZK-9. Ability to identify, set and solve problems.</p> <p>ZK-10. Ability to work in an international context.</p> <p>ZK-11. Ability to develop and manage projects.</p> <p>ZK-12. Determination and perseverance about the tasks and responsibilities.</p> <p>ZK-13. The desire to preserve the environment.</p> <p>ZK-14. Ability to organize the work of the production unit in accordance with the requirements of safety and health .</p>
<b>Special (professional) competencies (IC)</b>	<i>SK-1. Ability to apply knowledge and understanding of chemistry to solve qualitative and quantitative problems in another field of knowledge.</i>

	<p><i>SK-2.</i> Ability to identify and analyze new problems and formulate a strategic plan for solving them.</p> <p><i>SK-3.</i> Ability to use the knowledge, skills and competences in the disciplines of the general cycle of preparation for theoretical mastering of the disciplines of professional direction and solving practical problems of publishing and printing.</p> <p><i>SK-4 .</i> Competence in planning, designing and executing research work, from the stage of problem recognition to evaluation of results and formulation of conclusions; this includes the ability to select appropriate methods and procedures.</p> <p><i>SK-5.</i> Safe handling of chemical , publishing and printing materials, taking into account their physical and chemical properties, including any specific hazards associated with their use.</p> <p><i>SK-6.</i> Ability to evaluate risks associated with the use of chemicals and laboratory procedures.</p> <p><i>SK-7.</i> Ability to interpret data from laboratory observations and measurements in terms of their significance and to correlate them with relevant theory.</p> <p><i>SK-8.</i> Calculation skills, including aspects such as error analysis, order of validity, and correct use of units of measurement.</p> <p><i>SK-9.</i> The ability and use of modern computer and communication methods in chemistry.</p> <p><i>SK-10.</i> Ability to use professionally profiled knowledge in mathematics (mathematical statistics) for statistical processing of experimental data and mathematical modeling of chemical and chemical-technological processes.</p> <p><i>SK-11.</i> The skills of presenting scientific materials and arguments in writing and orally to a competent audience.</p> <p><i>SK-12.</i> Ability to business communication in the professional sphere, knowledge of the basics of business communication, teamwork skills.</p> <p><i>SK-13.</i> Monitoring skills, assessment of the impact of chemical and publishing technologies on the state of the environment.</p> <p><i>SK-14.</i> Knowledge of legal bases of industrial activity and legislation of Ukraine in the field of nature protection and nature management.</p> <p><i>SK-15.</i> Ability to plan environmental activities for production with subsequent implementation of appropriate safety measures .</p> <p><i>SK-16.</i> Ability to use automated process control systems in the industry.</p>
<b>F</b>	<b>Program learning outcomes</b>
<b>Learning outcomes in the cognitive (cognitive) field</b>	<p><i>RKS-1.</i> To select and apply knowledge and understanding of chemistry to solve qualitative and quantitative problems in chemicaland publishing production</p> <p><i>RKS-2.</i> To classify and analyze problems of different nature and formulate a strategic plan for solving them</p>

	<p><i>RKS-3.To</i> evaluate the impact of technological factors on the composition of the final product</p> <p><i>RKS-4.To</i> assess the risks associated with the use of chemicals and laboratory procedures.</p> <p><i>RKS-5.To</i> summarize the data obtained from laboratory observations and measurements in terms of their significance and relate them to the relevant theory</p> <p><i>RKS-6.</i> To establish the connection of the obtained data with the results of mathematical modeling of chemical and chemical-technological processes .</p> <p><i>RKS-7.To</i> explain the causes of risks associated with the use of chemicals and laboratory procedures.</p> <p><i>RKS-8.</i> To develop safety measures at the production with their further implementation.</p> <p><i>RKS-9To.</i> investigate the influence of physical and chemical factors on the properties of the object of study or design.</p> <p><i>RKS-10.</i> To use modern information and communication technologies for search, calculations, creation of graphic and text documents, for mathematical analysis and statistical processing in research and design .</p> <p><i>RKS-11.To</i> make general conclusions about the results of the study of the properties of the object of study or design.</p> <p><i>RKS-12.To</i> find engineering solutions for low-waste resource-saving technologies</p> <p><i>RKS-13.To</i> design drawings of equipment, structural elements, sections or chemical production shops.</p>
<b>Results of training in the value-motivational sphere</b>	<p><i>RCMS -1.To</i> meet the requirements of professional ethics in the workplace.</p> <p><i>RCMS -2.To</i> participate in discussing the results of different types of work (pilot, search, project, etc.).</p> <p><i>RCMS -3.To</i> desire to work independently .</p> <p><i>RCMS -4.To</i> ask questions in discussions with colleagues, teachers .</p> <p><i>RCMS -5.To</i> demonstrate acquired professional skills in creating scientific and project documentation.</p> <p><i>RCMS -6.To</i> organize workplace safety measures.</p> <p><i>RTSMS 7.To</i> collaborate with colleagues in related fields to achieve research or project objectives.</p>
<b>Learning outcomes in the psychomotor field</b>	<p><i>RPS-1.To</i> work out the experiment technique</p> <p><i>RPS-2.</i> Repeatedly reproduce the results of the experiments to obtain reliable values and calculate the error of the experiment.</p> <p><i>RPS-3.To</i> combine different research methods and methods to determine the values of the studied parameters.</p> <p><i>RPS-4.To</i> comply with workplace safety.</p>

**II. DEFINITION 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**

№ p / n	Subjects	Loans	Hours	Semester	Tetramester	Final control
<b>1. A REQUIRED PART</b>						
1.1. General training cycle (generates competencies)						
1.1.1	Management in production	4.0	120	1	1	d. test .
1.1.2	Intellectual Property	2.0	60	2	4	credit
1.1.3	Civil Protection	1.5	45	1	2	d. test
1.1.4	Labor protection in the industry	2.0	60	1	1	exam.
1.1.5	Physical training (free of credit discipline)					
1.1.6	Foreign language for professional purposes	4.0	120	2	3, 4	d. test
1.1.7	Psychology and methods of teaching professional disciplines in higher education	2.0	60	2	3	credit
1.1.8	Methodology and organization of scientific research	4.0	120	2	3	credit
	<b>TOTAL TOGETHER 1.1</b>	<b>19.5</b>	<b>585</b>			
1.2. Training cycle (forms special (professional) competences)						
1.2.1	Automated process control systems in the industry	4.0	120	1	2	d. test
1.2.2	Technology of production and use of photo composite materials	5.0	150	1	1,2	exam
1.2.3	Scientific research on the topic of master's work	2.0	60	2	4	credit
1.2.4	Theoretical and experimental methods of investigation of polymeric	3.0	90	1	2	d. test

	and composite materials					
1.2. 5	Modeling of technical systems	5,0	150	2	3	exam
1.2. 6	Preparation of master's qualification work and state certification	25,5	765			YES
	<b>TOTAL TOGETHER 1.2</b>	<b>44,5</b>	<b>1335</b>			
	<b>A MANDATORY PART TOGETHER</b>	<b>64,0</b>	<b>1920</b>			
<b>2. SELECTIVE PART</b>						
<b>2.1. General training cycle (generates competencies)</b>						
2.1.1	Fundamentals of technology of production and processing of polymers	7,5	225	1	1,2	exam
2.1.2	Special purpose polymers	3,0	90	1	2	d. test
	<b>TOTAL TOGETHER 2.1</b>	<b>10.5</b>	<b>315</b>			
<b>2.2. Training cycle (forms special (professional) competences)</b>						
2.2.1	Production technology of seals and stamps	3,0	90	2	4	exam
2.2.2	Newest technologies in publishing and printing industries	2,0	60	2	4	exam
2.2.3	One of the modules	10.5	315			
	<b>Module 1</b>					
	Research practice	6	180			d. test
	Assistant practice	4.5	135			d. test
	<b>Module 2</b>					
	Research practice	6	180			d. test
	Undergraduate - industrial practice	4.5	135			d. test
	<b>TOTAL TOGETHER 2.2</b>	<b>15.5</b>	<b>465</b>			
	<b>SELECTIVE PART TOTAL</b>	<b>26,0</b>	<b>780</b>			
	<b>THE TOTAL AMOUNT</b>	<b>90,0</b>	<b>2700</b>			

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

№ p / n	Preparation cycle	Higher education student load (credits /%)		
		Compulsory components of educational and professional program	Selective components of a professional education program	Total for the whole term of study
1.	General training cycle (generates competencies)	19 , 5 / 21.7	10 , 5 / 11.7	30 /22
2.	Training cycle (forms special (professional) competences)	44.5 / 49.3	15.5 / 17.3	60 /78
Total for the whole term of study		64 / 71	26 / 29	90/100

**Table 3. List of disciplines of the educational and professional training program for second-level (master's) level students, training time in ECTS credits in the preparation cycles, and list of competences and learning outcomes formed**

Training cycles	Competency Codes	Codes of learning outcomes	List of disciplines	ECTS credits
1	2	3	4	5
1.1. The cycle of general training (forming general competence -ness)	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12, SK-1, SK-2, SK-9, SK-11, SK-12, SK-14, SK-15.	RKS-1, RKS-2, RCMS-2, RCMS-3, RCMS-4, RCMS-7	1.1.1. Management in production	4.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-8, ZK-9, ZK-10, ZK-12, SK-1, SK-4, SK-9, SK-11, SK-12, SK-14.	RKS-1, RKS-2, RKS-5, RCMS-2, RCMS-3, RCMS-4, RCMS-5, RCMS-7	1.1.2. Intellectual Property	2.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12, ZK-14, SK-1, SK-2, SK-12	RKS-2, RKS-3, RCMS-1, RCMS-2, RCMS-3, RCMS-4	1.1. 3 . Civil Protection	1.5
	ZK-1, ZK-2, ZK-3,	RCMS-2, RCMS-3,	1.1. 4 . Occupational	2 , 0

	ZK-5, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12 , SK-9, SK-11	RCMS-4, RCMS-7	Health in	
	INT, ZK-2, ZK-3, ZK-4, ZK-9, ZK-12, ZK-13, ZK-14, SK-1, SK-2, SK-4, SK-6, SK-13, SK-14, SK-15	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RCMS-4, RCMS-6	1.1. 5 . Physical training (free of credit discipline)	
	INT, ZK-2, ZK-3, ZK-4, ZK-9, ZK-12, ZK-13, ZK-14, SK-1, SK-2, SK-4, SK-5, SK-6, SK-13, SK-14, SK-15	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-12, RKS-13, RCMS-4, RCMS-6	1.1. 6 . Foreign language for professional purposes	4.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4,, ZK-5, ZK-6, ZK-7, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12 , ZK-14, SK-1, SK-2, SK-3, SK-4, SK-5, SK-6, SK-7, SK-8, SK-9, SK-10, SK-11, SK-12	RKS-1, RKS-2, RKS-3, RKS-5, RKS-6, RKS-9, RKS-10, RKS-11, RCMS-1, RCMS-2, RCMS-3, RCMS-4, RCMS- 5, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3, RPS-4	1.1. 7 . Psychology and methods of teaching professional disciplines in higher education	2.0
	INT, ZK-1, ZK-2,	RKS-1, RKS-2,	1.1. 8 . Methodology	4.0

	ZK-3, ZK-4, ZK-5, ZK-6, ZK-8, ZK-9, ZK-10, ZK-12, SK-1, SK-4, SK-9, SK-11, SK-12, SK-14.	RKS-5, RCMS-2, RCMS-3, RCMS-4, RCMS-5, RCMS-7	and organization of scientific research	
			<b>TOTAL 1.1</b>	<b>19.5</b>
1.2 Cycle training (forming special competence -ness)	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12, ZK-13, ZK-14, SK-1, SK-2, SK-4, SK-6, SK-7, SK-8, SK-15, SK-16	RKS-1, RKS-2, RKS-3, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-5, RCMS-6, RCMS-7, RPS-4	1.2.1. Automated process control systems in the industry	4.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK-13, SK-1, SK-2, SK-3, SK-4, SK-6, SK-14	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7	1.2.2. Technology of production and use of photo composite materials	5,0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-8, ZK-12, ZK-13, SK-1, SK-2, SK-3, SK-4, SK-5, SK-6, SK-7, SK-	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3,	1.2.3 . Scientific research on the topic of master's work	2,0

	8 ,SK-9, SK-10, SK-11, SK-16	RPS-4		
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK- 13, SK-1, SK-2, SK-3, SK-4 , SK- 6, SK- 7 , SK- 8 ,SK- 9 , SK- 10	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-4	1 .2. 4 . Theoretical and experimental methods of investigation of polymeric and composite materials	3.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK- 13, ZK-14, SK-1, SK-2, SK-3, SK- 4,SK-9, SK-10, SK-11, SK-12, SK- 14, SK-15, SK-16	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-4	1 .2. 5 . Modeling of technical systems	5.0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-7, ZK-8, ZK-9, ZK-10, ZK- 11, ZK-12, ZK-14, SK-1, SK-2, SK-3, SK-4, SK-5, SK-6, SK-7, SK-8, SK-9, SK-10, SK-11, SK- 12	RKS-1, RKS-2, RKS-3, RKS-5, RKS-6, RKS-9, RKS-10, RKS-11, RKS-12, RKS-13, RCMS-1, RCMS-2, RCMS- 3, RCMS- 4, RCMS-5, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3, RPS-4	1 .2. 6 . Preparation of master's qualification work and state certification	2 5 , 5

			<b>TOTAL 1.2</b>	44.5
			<b>TOTAL 1</b>	64,0
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK-13, SK-1, SK-2, SK-3, SK-4 , SK-6, SK-14	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7	2.1.1 Fundamentals of technology for the production and processing of polymers	7.5
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK-13, SK-1, SK-2, SK-3, SK-4 , SK-6, SK-14	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-1, RPS- 2, RPS-3, RPS-4	2.1.2 Special purpose polymers	3.0
			<b>TOTAL 2.1</b>	10.5
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12, ZK-13, ZK-14, SK-1, SK-2, SK-4, SK-6, SK-7, SK-8, SK-15, SK-16	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-1, RPS- 2, RPS-3, RPS-4	2.2.1 Technology of making seals and stamps	3.0

	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-12, ZK-13, SK-1, SK-2, SK-3, SK-4 , SK-6	RKS-1, RKS-2, RKS-4, RKS-7, RKS-8, RKS-10, RKS-12, RCMS-1, RCMS-2, RCMS-6, RCMS-7, RPS-4	2.2.2 Newest technologies in publishing and printing industries	2.0
			2.2. 3 . One of the modules	10.5
			<b>Module 1</b>	
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-7, ZK-8, ZK-9, ZK-10, ZK-12, ZK-13, ZK-14, SK-2, SK-4, SK-5, SK-6, SK-7, SK-8, SK-9, SK-10, SK-11, SK-12	RKS-1, RKS-2, RKS-3, RKS-5, RKS-6, RKS-9, RKS-10, RKS-11, RKS-12, RKS-13, RCMS-1, RCMS-2, RCMS- 3, RCMS-4, RCMS-5, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3, RPS-4	Research practice	
			<b>Module 2</b>	
	INT, ZK-1, ZK-2, ZK-3, ZK-4, ZK-5, ZK-6, ZK-7, ZK-8, ZK-9, ZK-10, ZK-12, ZK-13, ZK-14,, SK-2, SK-4, SK-5, SK-6, SK-7, SK-8,	RKS-1, RKS-2, RKS-3, RKS-5, RKS-6, RKS-9, RKS-10, RKS-11, RKS-12, RKS-13, RCMS-1, RCMS-2, RCMS- 3, RCMS-	Research practice	

	SK-9, SK-10, SK-11, SK-12	4, RCMS-5, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3, RPS-4		
	INT, ZK-1, ZK-2, ZK-3, ZK-6, ZK-8, ZK-9, ZK-10, ZK-11, ZK-12, ZK-13, ZK-14, SK-1, SK-2, SK-4, SK-5, SK-6, SK-8, SK-9, SK-12, SK-13, SK-14, SK-15, SK-16	RKS-1, RKS-2, RKS-3, RKS-9, RKS-10, RKS-11, RKS-12, RKS-13, RCMS-1, RCMS-2, RCMS-3, RCMS-4, RCMS-5, RCMS-6, RCMS-7, RPS-1, RPS-2, RPS-3, RPS-4	Undergraduate manufacturing practice	
			<b>TOTAL 2.2</b>	<b>15.5</b>
			<b>TOTAL 2</b>	<b>26,0</b>
			<b>TOTAL</b>	<b>90,0</b>

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

Code of discipline according to the curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.1.8	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	2.1.1	2.1.2	2.2.1	2.2.2	2.2.2 Module 1		2.2.2 Module 2	
																			Research practice	Assistant practice	Research practice	Undergraduate manufacturing practice
INT	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-1	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-4	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
ZK-5		+	+	+			+	+		+	+	+	+	+	+	+		+	+	+	+	
ZK-6	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-7							+							+					+		+	
ZK-8	+	+	+	+			+	+	+		+			+				+	+		+	+
ZK-9	+	+	+	+	+	+	+	+	+					+				+	+		+	+
ZK-10	+	+	+	+			+	+	+					+				+	+		+	+
ZK-11	+		+	+			+		+					+				+				+
ZK-12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-13					+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+
ZK-14			+		+	+	+		+				+	+			+	+	+	+	+	+
SK-1	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+
SK-2	+		+		+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
SK-3							+			+	+	+	+	+	+	+		+				
SK-4		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+
SK-5						+	+							+					+		+	+
SK-6					+	+	+		+	+		+		+	+	+	+	+	+		+	+
SK-7							+		+					+			+		+		+	
SK-8							+		+					+			+		+		+	+
SK-9	+			+			+	+			+		+	+					+	+	+	+
SK-10							+				+		+	+					+		+	
SK-11	+	+		+			+	+			+		+	+					+	+	+	

SK-12	+	+	+				+	+						+	+					+	+	+	+	
SK-13					+	+																		+
SK-14	+	+			+	+		+		+					+	+								+
SK-15	+				+	+			+				+				+							+
SK-16									+		+		+				+							+

**Table 5. Software Matrix for Software Learning Outcomes with Related Components Educational and professional program**

Code of discipline per academicth Plan	1.1. 1	1.1. 2	1.1. 3	1.1 .4	1.1 .5	1.1 .6	1.1 .7	1.1 .8	1.2 .1	1.2 .2	1.2 .3	1.2 .4	1.2 .5	1.2 .6	2.1 .1	2.1 .2	2.2 .1	2.2 .2	2.2. 2 Module 1		2.2. 2 Module 2		
																			Resear ch practic e	Assist ant practic e	Resear ch practic e	Undergrad uate manufactu ring practice	
RKS-1.	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	
RKS-2.	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
RKS-3.			+				+		+					+					+		+	+	
RKS-4.					+	+			+	+	+	+	+		+	+	+	+					
RKS-5.		+					+	+						+					+		+		
RKS-6.							+						+	+					+		+		
RKS-7.					+	+			+	+	+	+	+		+	+	+	+					
RKS-8.					+	+			+	+	+	+	+		+	+	+	+					
RKS-9.							+							+					+		+	+	
RKS-10.							+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	

<i>RKS-11.</i>							+							+					+		+	+
<i>RKS-12.</i>							+			+	+	+	+	+	+	+	+	+	+		+	+
<i>RKS-13.</i>							+							+				+	+		+	+
<i>RCMS -1.</i>			+				+		+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>RCMS -2.</i>	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>RCMS -3.</i>	+	+	+	+			+	+						+					+	+	+	+
<i>RCMS -4.</i>	+	+	+	+	+	+	+	+						+					+	+	+	+
<i>RCMS -5.</i>		+					+	+	+					+					+	+	+	+
<i>RCMS -6.</i>					+	+	+		+	+	+	+		+	+	+	+	+	+	+	+	+
<i>RTSMS 7.</i>	+	+		+			+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
<i>RPS-1.</i>							+				+			+		+	+		+		+	+
<i>RPS-2.</i>							+							+		+	+		+		+	+
<i>RPS-3.</i>							+							+		+	+		+		+	+
<i>RPS-4.</i>							+		+			+		+		+	+	+	+	+	+	+

### III - FORMS OF CERTIFICATES FOR HIGHER EDUCATION PROVIDERS

<p><b>Forms of attestation of applicants for higher education</b></p>	<p>The mandatory form of state certification is the implementation and protection of qualification (diploma) works (projects).</p> <p>The system of competencies and learning outcomes specified in Chapters IV and V. are subject to state certification.</p> <p>The main means of objective control of the degree of achievement of the final goals of education and professional training of masters 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) projects (works) ).</p>
<p><b>Requirements for final qualification work (in the presence)</b></p>	<p>Requirements for the final qualification work are set out in the Guidelines for the implementation of qualification (diploma) projects (works).</p> <p>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.</p>
<p><b>Certification / Uniform Qualification Exam Requirements (exams) (in the presence)</b></p>	
<p><b>Requirements for public protection (demonstration) (in the presence)</b></p>	<p>Requirements for public protection are formulated in the Regulations on the EC and guidelines for the implementation of qualification (diploma) projects (works).</p>

#### **IV - Requirements for having an internal quality assurance system for higher education**

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

<b>Components of the internal quality assurance system of higher education</b>	<b>Definitions, references and related documents</b>
<b>Principles and procedures for quality assurance in education</b>	<ul style="list-style-type: none"> <li>- Law of Ukraine "On Higher Education" dated 01.07.2014, № 1556-VII;</li> <li>- Provisional Regulation on the Organization of the Educational Process at the State Higher Educational Institution of the State University of Chemical Technology (Order of the Rector of the State University of Chemical Technology № 290 of 30.11.2015);</li> <li>- Regulations on diploma with honors of the State University of Chemical Technology (Order of the Rector of the State University of Chemical Technology from February 25, 2016 No. 55);</li> <li>- Regulations on the procedure for setting up and organizing the work of the examination commission at the State Higher Educational Institution of the State University of Chemical Technology (Order of the Rector No. 68 of 01.04.2015, No. 68);</li> <li>- Regulations on the development of approval and revision of work programs of educational disciplines (Order of the Rector of the State Higher Educational Institution of the State University of Chemical Technology № 291 of 01.12.15)</li> </ul>
<b>Monitoring and periodic review of educational programs</b>	Annual monitoring of requirements of industry and labor market, review of educational programs, work curricula, work programs of educational disciplines. On approval of the composition of project teams for the development of educational programs (Order of the Rector of the State University of Chemical Technology from 10.03.2016 No. 74)
<b>Annual evaluation of higher education applicants</b>	Regulations on the Organization of Rector Control of Training Quality
<b>Annual evaluation of</b>	Regulations on the Rector's Control Commission

<b>scientific-pedagogical and pedagogical staff of a higher educational institution</b>	<p>of pedagogical skills of scientific and pedagogical workers of the University (Order of the Rector of the State University of Chemical Technology 04.04.2016. №85), Procedure of application of the rating system of evaluation of the activity of scientific and pedagogical workers of the State University of Chemical Technology (Ordinance of the Rector of 04.06.2010, № 209 with changes of 06.06 to 09.06.2010 .2011, № 147), Procedure for applying the rating system for evaluating the activities of the departments and departments of the State University of Chemical Technology (Order of the Rector of 20.06.2010, № 209).</p> <p>The 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</p>
<b>Improvement of qualification of scientific-pedagogical, pedagogical and scientific workers</b>	<p>Improvement of qualification of scientific and pedagogical staff is carried out according to the provision approved by the order of MESU from 24.01.2013. No. 48 and the Regulations on professional development and training of pedagogical and scientific-pedagogical employees of the State University of Chemical Technology (Order of the Rector of the State University of Chemical Technology( May 28, 2016 No. 105)</p>
<b>Availability of necessary resources to organize the educational process</b>	<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. License Series AE No. 636496. Certificates in areas of training and specialties.</p>
<b>Availability of information systems for effective management of the educational process</b>	<p>The Temporary Provision on the Organization of the Educational Process in the State Educational Institution of the State University of Chemical Technology(Order of the Rector of the State Higher Educational Institution of State university of Chemical Technology № 290) is supported by the Information-analytical system of control of the educational process, which consists of subsystems: Entrant, Educational process.</p>
<b>Publicity of information on educational programs, degrees of higher education and</b>	<p>Information about educational programs, degrees of higher education and qualification is publicly and fully published on the official web-portal of the University <a href="http://udhtu.com.ua">http://udhtu.com.ua</a></p>

<b>qualification</b>	
<b>Preventing and detecting academic plagiarism</b>	Verification of completeness of tasks, quality of work as a whole 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.