

Ministry of Education and Science of Ukraine
State Higher Educational Institution
Ukrainian State University of Chemical Technology

Rector of SHEI USUCT

_____ O.A. Pivovarov

«_____» _____ 2019 р.

EDUCATIONAL-PROFESSIONAL PROGRAM

The second (master's) level

(name of higher education level)

Master

(name of degree to be assigned)

**BRANCH OF
KNOWLEDGE**

15 автоматизація та приладобудування

(шифр та назва галузі знань)

SPECIALTY

**152 metrology and information and measurement
technique**

(code and specialty name)

SPECIALIZATION

-

(in the presence)

Approved at the meeting of the
Academic Council of SHEI USUCT
from «16» __06__ 2016р.
protocol № __5__

Dniepr
2019

Letter of approval

EDUCATIONAL PROFESSIONAL PROGRAM

Higher education level	The second (master's) level
Branch of knowledge	15 Automation and instrumentation
Specialty	152 metrology and information and measurement technique
Specialization	Metrology and measuring technique
"AGREED"	"DEVELOPERS"
The first vice-rector, the head of the scientific and methodical council of the SHEI USUCT _____ <u>Goleus V.I.</u> (signature) (surname and initials) " ____ " _____ 2019	Project team leader _____ <u>Chernetsky Ye.V.</u> (signature) (surname and initials) " ____ " _____ 2019
Head of the NSC _____ <u>Smotraev R.V.</u> (signature) (surname and initials) " ____ " _____ 2019	Project team members _____ <u>Alevskyy V.I.</u> (signature) (surname and initials) " ____ " _____ 2019
Scientific-methodical department _____ <u>Fomenko G.V.</u> (signature) (surname and initials) " ____ " _____ 2019	_____ <u>Oliynyk O.Yu.</u> (signature) (surname and initials) " ____ " _____ 2019
Dean of the Faculty of Science and Technology _____ <u>Levchuk I.L.</u> (signature) (surname and initials) " ____ " _____ 2019	
Head of Department _____ <u>Taranenko Yu.K.</u> (signature) (surname and initials) " ____ " _____ 2019	The _____ educational-professional program was granted by the order of the rector №248 from "17" <u>10</u> 2016.

I. PROFILE OF THE EDUCATIONAL PROFESSIONAL PROGRAM OF THE MASTER

from the specialty "Metrology and information-measuring technique"

Program profile (general information)	
Full name of the qualification in the original language	Master in Metrology and Information Technology
The official name of the educational program	Educational and professional program of preparation of the master's degree in metrology and information-measuring technique
Type of diploma and volume of educational program	Master's degree in metrology and information measuring equipment, single (double, shared with the relevant agreements, training programs); 90 ECTS credits
Full name of higher education institution awarding qualification	State Higher Educational Institution "Ukrainian State Chemical Technology University"
Accrediting organization	Accreditation Commission of Ukraine (DUU "Educational and Methodological Center for Quality of Education").
Period of accreditation	Accredited on 20th of 13th year. Certificate ND-IV , № 0424993 , term of validity of the certificate of accreditation till 01.07.2018.
Cycle / Level	NRC of Ukraine - 7th level, FQ-EHEA - second cycle, EQF-LLL - 7th level
Prerequisites	The first (bachelor's) level
Language (s) of teaching	Ukrainian language
AND	
	The purpose of the educational program
The purpose of the educational program	To ensure students acquire knowledge, skills and understanding in the field of automation and instrumentation her, to enable them to carry out original research or to work independently in the workplace.
B	
	Characteristics of the educational program
Subject area (branch of knowledge, specialty)	Branch of Knowledge 15 - automation and Instrumentation : specialty 152 - metrology and information-measuring technique
The main focus of the program and specialization	Total higher education in the field of automation and instrumentation her.
Program orientation	The research line is scientifically oriented, the teaching and applied line are practically oriented.
Features and differences	The program is scientifically or practically oriented, which defines the type of practice (module 1 or module 2 is selected in the cycle of

	vocational training courses).
C	
	Ability to work and study
Ability to work	Jobs in high-tech companies in the processing industry; teachers of educational institutions of different levels of education; scientists in research organizations, research centers, laboratories.
Further training	Education at the third level education for a doctoral program in the field of automation and instrumentation her.
D	
	Teaching style and teaching methods
Approaches to teaching and learning	Combination of lectures, practical and seminar classes, experimental research in laboratories, writing course projects or works, self-study, preparation of qualifying work.
Methods of evaluation	Written and oral examinations, credits, presentations, defense of master's qualification work.
E	
	Program competencies
Integral competence (IK)	Master (Level 7): Ability to solve complex problems and problems in the field of instrumentation and automation of metrological activity, which involves conducting research and / or innovations in applying methods and principles of metrology, methods of constructing measuring instruments, including systems, information technologies as in the field of instrument design, and in the processing of measurement information in situations characterized by uncertainty of conditions and requirements
General Competence (GC)	GC-1 Ability to identify the scientific essence of problems in the professional sphere, to find adequate ways to solve them. GC-2 Ability to communicate with representatives of other professional groups of different levels (with experts from other branches of knowledge / types of economic activity, auditors of certification bodies). GC-3 Skills in the use of information and communication technologies. GC-4 Ability to independently master new research methods, changes in the scientific and scientific-production profile of their activities. GC-5 Ability to investigate problems using system analysis, synthesis, computer simulation and optimization methods. GC-6 Ability to generate new ideas (creativity), identify, put and solve problems, find the best ways to solve them. GC-7 Ability to analyze, verify, evaluate the completeness of information in the course of professional activity, if necessary, to supplement and synthesize the missing information and to work in conditions of uncertainty. GC-8 Ability to conduct professional, including research, in the

	<p>international environment.</p> <p>GC-9 Ability to manage projects, organize team work, take an initiative to improve the activities.</p> <p>GC-10 Ability to assess and ensure the quality of work performed.</p>
<p>Special (Professional) Competence (SC)</p>	<p>SC-1 Ability apply appropriate mathematical, scientific and technical methods and computer software to solve problems in the field of metrology and information measuring equipment.</p> <p>SC-2 Ability to compose technical tasks for the development of information measuring systems, to prepare the necessary reviews, descriptions of the principles of operation, measurement methods, to make a choice of technical solutions with the necessary justification of the decisions.</p> <p>SC-3 Ability to demonstrate knowledge and understanding of scientific facts, concepts, theories, principles and methods necessary to support specializations in metrology and information and measuring techniques.</p> <p>SC-4 Ability to apply modern methods and means of design and modeling, design of electronic, mechanical, electromechanical and opto-mechanical units of instrumentation devices.</p> <p>SC-5 Ability to use modern engineering and mathematical packages for the creation of virtual instruments and systems and the analysis of physical quantities used in scientific experiments, laboratory and industrial installations.</p> <p>SC-6 Ability to develop methodological and normative documents related to testing, calibration, calibration and verification of conformity of measuring equipment, and measures for their implementation, which includes the choice of necessary equipment.</p> <p>SC-7 Ability to organize and conduct pilot studies in the certification of products, services and personnel, testing and calibration laboratories.</p> <p>SC-8 Ability to determine the effectiveness of solutions in the field of metrology and metrology for using analytical methods and modeling techniques.</p> <p>SC-9 Ability to demonstrate knowledge and understanding of the mathematical principles and methods necessary to support specializations in metrology and information-measuring techniques.</p> <p>SC-10 Ability to develop plans and projects to ensure the achievement of a specific goal, taking into account all aspects of the problem being solved.</p> <p>SC-11 Ability to apply the mathematical theory of organization and planning of the experiment, to develop plans for conducting research, to choose algorithms for measuring the measurement information, as well as to apply the necessary software for automation of computations.</p> <p>SC-12 Ability to develop a program of metrological support for the</p>

	<p>technological process, as well as measuring instruments at different stages of their life cycle.</p> <p>SC-13 To improve methods and technical means of assessing the quality of products and services using information technology.</p> <p>SC-14 To carry out a study of quality indicators and implement a qualitative product evaluation.</p>
F	Program learning outcomes
Learning outcomes in the cognitive field (OCF)	<p>OCF-1 Knowledge and understanding of modern methods of scientific research, physical and mathematical methods used in engineering and research practice, at a level necessary to achieve other results of the educational program.</p> <p>OCF-2 Knowledge and understanding of the basic concepts of metrology, measurement theory, mathematical and computer modeling, advanced methods of processing and evaluating the measurement accuracy of the experiment, standardization and conformity assessment at the level required to achieve results other applications, including specific knowledge in the latest developments .</p> <p>OCF-3 Knowledge of modern methods and software for constructing adequate theoretical models and methods of their study.</p> <p>OCF-4 Ability to analyze complex engineering tasks, processes and systems according to specialization; to select and apply suitable standard analytical, computational and experimental methods; the ability to interpret the results of such studies.</p> <p>OCF-5 Knowledge of structure, content and methods of design methodology and normative documents concerning metrology in Ukraine and internationally.</p> <p>OCF-6 Knowledge of algorithms and schemes calibration, verification, verification of compliance as information and measuring systems as a whole and its individual elements.</p> <p>OCF-7 Knowledge and skills in practice structural and algorithmic methods to increase measurement accuracy and reliability monitoring, including the use of computerized systems.</p> <p>OCF-8 Knowledge of implement the basic principles of metrology at various stages of the life cycle of information measuring systems and its individual modules.</p> <p>OCF-9 Knowledge of the basics of professional-oriented disciplines of the specialty, methods and means of measuring electrical and magnetic quantities, methods and tools for measuring mechanical quantities, the theory of errors and uncertainty, the theory of intellectual measuring transducers, devices and systems of precision mechatronics, virtual measuring instruments, cyber-physical systems.</p> <p>OCF-10 Ability to identify, classify and describe the operation of</p>

	<p>devices and systems and their modules.</p> <p>OCF-11 Ability to use information on technical characteristics, design features, purpose and conditions of operation of equipment and equipment in solving problems of measurement and their application.</p> <p>OCF-12 Knowledge of the basics principles and organization of information-measuring systems, skills tailored to suit their application areas, to determine the accuracy of the characteristics and their individual modules.</p> <p>OCF-13 Knowledge of the main provisions of the theory, organization and planning measurement experiment, to be able to choose the plan according object model to conduct the experiment, including the use of computerized systems.</p> <p>OCF-14 Ability to present and discuss research results in foreign language (English or another, according to the specific specialty) orally and in writing, participate in discussions and scientific conferences.</p> <p>OCF-15 Knowledge and to be able to apply modern information technology tools to solve problems in the field of metrology and information measuring equipment.</p> <p>OCF-16 To orientate in the patent information and documentation, to investigate and qualitatively formulate signs of novelty in the objects being developed, to submit applications for inventions, to be able to analyze technical solutions in order to determine their security and patent cleanliness.</p>
<p>Learning outcomes in the value-motivational sphere (OVMS)</p>	<p>OVMS-1. To meet the requirements of professional ethics in the workplace.</p> <p>OVMS-2. To participate in discussing the results of various types of work (research, search, design, etc.).</p> <p>OVMS-3. To express the desire to work independently.</p> <p>OVMS-4. To ask questions in discussions with colleagues and instructors.</p> <p>OVMS-5. To demonstrate received professional skills in creating scientific and project documentation.</p> <p>OVMS-6. To organize safety precautions in the workplace.</p> <p>OVMS-7. To collaborate with colleagues in related areas to achieve research or project objectives.</p>
<p>Results of studies in the field of psychomotor (RFP)</p>	<p>RFP-1. To exercise the experiment method</p> <p>RFP-2. Repeatedly reproduce the results of experiments to obtain reliable values and calculate the error of the experiment.</p> <p>RFP-3. To combine different research methods to determine the value of the studied parameters and characteristics.</p> <p>RFP-4. Adhere to safety equipment in the workplace.</p>

**II DETERMINATION OF TRAINING DISCIPLINES / MODULES,
which will ensure achievement of the planned results of training and forms of
certification of higher education applicants for the educational program in
accordance with the standard of higher education**

**Table 1 - Distribution of the contents of the educational-professional program in
terms of training cycles and form of final control**

No. n / p	Subjects	Loans	Hours	Semester	Tetramestr	Final control
1 MANDATORY PART						
1.1 Cycle of general training (generates general competencies)						
1.1.1	Intellectual Property	2,0	60	2	4	test
1.1.2	Foreign language in professional direction	4,0	120	2	3,4	d/test
1.1.3	Civil protection	1,5	45	1	1	test
1.1.4	Psychology and teaching methods in the field of disciplines in high school	2,0	60	2	3	test
1.1.5	Occupational Health in	2,0	60	1	2	ex
1.1.6	Methodology and organization of scientific research	3	90	1	1	test
1.1.7	Physical culture (extracurricular discipline)					
SUM TOTAL by Cycle 1.1		14,5	435			
1.2 Cycle of professional training (forming special (professional) competencies)						
1.2.1	Fundamentals of modern metrology	4,0	120	1	1,2	ex
1.2.2	Standardization and certification fundsmeasurement	3,5	105	1	1,2	ex
1.2.3	Information technologies in metrology and measuring technics	13,0	390	1,2	2,3,4	ex
1.2.4	Special divisions of information technologies in metrology	4,0	120	2	4	ex
1.2.5	Preparation of a qualification master's work and state certification	19,5	585	3	5,6	YES
SUM TOTAL by Cycle 1.2		44,0	1320			
MANDATORY PART WITH TOTAL		58,5	1755			
2 CHECKING PART						
2.1 General training cycle (generates general competencies)						
SUM TOTAL by Cycle 2.1						

2.2 Cycle of professional training (generates special (professional) competencies)						
2.2.1	Optical-mechanical measurements	10,0	300	1	1,2	ex
2.2.2	Object modeling of measuring systems	3,0	90	1	1	d/test
2.2.3	One of the modules	10,5	315	3	5	
	<i>Module 1</i>					
	Research practice	6,0	180	3	5	d/test
	Present practice	4,5	135	3	5	d/test
	<i>Module 2</i>					
	Research practice	6,0	180	3	5	d/test
	Pre-graduation production practice	4,5	135	3	5	d/test
2.2.4	Additional Loans for Preparation of Qualification Master's Work (1.2.5)	8,0	240	2	3,4	
	SUM TOTAL by Cycle 2.2	31,5	945			
	CURRENT PART WITH TIME	31,5	945,0			
	TOTAL VOLUME	90,0	2700			

Table 2 - Generalized distribution of the content of the educational and professional program by groups of components (disciplines) and training cycles

№ П / П	Training cycle	Educational load of the applicant of higher education (credits / %)		
		Compulsory components of an educational and professional program	Elective components of the educational-professional program	Total for the whole period of study
1	General training cycle (generates general competencies)	14,5 / 16,1	-	14,5 / 16,1
2	Cycle of professional training (forms special (professional) competence)	44,0 / 48,9	31,5 / 35,0	75,5 / 83,9
Total for the whole period of study		58,5 / 65,0	31,5 / 35,0	90,0 / 100,0

Table 3 - List of disciplines of the educational-professional program of preparation for second level (master's) level education, ECTS credits for training cycles, and a list of established competencies and learning outcomes

Training cycles	Criteria of competencies	Criteria for learning outcomes	List of disciplines	ECTS Loans
1	2	3	4	5
1.1. General training cycle (generates general competencies)	GC-2, GC-7, GC-8, SC-10	OCF-14, OCF-16, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-7	1.1.1 Intellectual Property	2,0
	GC-2, GC-3, GC-8, GC-9, SC-1, SC-2, SC-3, SC-5, SC-6, SC-9, SC-13.	OCF-5, OCF-10, OCF-11, OCF-14, OCF-16, OVMS-2, OVMS-4, OVMS-5, OVMS-7	1.1.2 Foreign language by professional orientation	4,0
	GC-2, GC-3, GC-4, GC-6, GC-9, SC-10	OCF-2, OVMS-2, OVMS-6	1.1.3 Civil protection	1,5
	GC-2, GC-3, GC-4, GC-6, GC-8, GC-9, GC-10, SC-9, SC-10	OCF-14, OVMS-1, OVMS-2, OVMS-4, OVMS-5	1.1.4 Psychology and methods of teaching specialty disciplines in higher education	2,0
	GC-2, GC-3, GC-4, GC-6, SC-6, SC-7, SC-10, SC-12	OCF-11, OCF-13, OVMS-6, RFP-4.	1.1.5 Labor protection in the industry	2,0
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, SC-1, SC-6, SC-11, SC-14	OCF-1, OCF-10, OCF-14, OCF-16, OVMS-2, OVMS-3	1.1.6 Methodology and organization of scientific research	3
			1.1.7 Physical culture (extracurricular discipline)	2,0
		SUM TOTAL 1.1	14,5	
1.2 Cycle of professional training (forms	GC-4, GC-5, GC-6, GC-7, SC-1, SC-3, SC-4, SC-9, SC-13	OCF-6, OCF-7, OCF-9, OVMS-1, OVMS-2, OVMS-5	1.2.1 Fundamentals of modern metrology	4,0
	GC-2, GC-6, GC-7, GC-8,	OCF-2, OCF-5, OCF-6,	1.2.2 Standardization	3,5

special (professional) competence)	SC-5, SC-6, SC-7, SC-9, SC-13, SC-14	OCF-10, OCF-11, OVMS- 2, OVMS-5, OVMS-7	and certification of measuring instruments	
	GC-1, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC- 10, SC-1, SC-2, SC-4, SC- 5, SC-6, SC-8, SC-10, SC- 11, SC-12	OCF-1, OCF-2, OCF-3, OCF-4, OCF-8, OCF-11, OCF-15, OVMS-2, OVMS- 5, OVMS-7	1.2.3 Information technology in metrology and measuring technology	13,0
	GC-2, GC-3, GC-7, GC-8, GC-9, SC-1, SC-4, SC-6, SC-13	OCF-1, OCF-11, OCF-12, OCF-15, OVMS-2, OVMS- 5, OVMS-7	1.2.4 Special units of information technology in metrology	4,0
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC-10, 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	OCF-1, OCF-2, OCF-3, OCF-4, OCF-5, OCF-6, OCF-7, OCF-8, OCF-9, OCF-10, OCF-11, OCF-12, OCF-13, OCF-14, OCF-15, OCF-16, OVMS-1, OVMS- 2, OVMS-3, OVMS- 4, OVMS-5, OVMS-6, OVMS-7, RFP-1, RFP-2, RFP-3, RFP-4	1.2.5 Preparation of qualification master's work and state certification	19,5
			SUM TOTAL 1.2	44,0
2.2 Cycle of professional training (forms special (professional) competence)	GC-1, GC-2, GC-3, GC-5, GC-6, GC-7, GC-10, SC- 1, SC-2, SC-4, SC-5, SC- 9, SC-10, SC-12	OCF-2, OCF-3, OCF-4, OCF-9, OCF-11, OCF-13, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-7	2.2.1 Optical-mechanical measurements	10,0
	GC-3, GC-5, GC-6, GC-7, GC-10, SC-1, SC-3, SC-4, SC-5, SC-8, SC-9	OCF-3, OCF-4, OCF-9, OCF-12, OCF-15, OVMS- 3, OVMS-6, RFP-4	2.2.2 Object Modeling of Measuring Systems	3,0
			2.2.3 One of the modules	10,5

			Module 1	
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC-9, GC-10, 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	OCF-1, OCF-2, OCF-3, OCF-4, OCF-5, OCF-6, OCF-7, OCF-8, OCF-9, OCF-10, OCF-11, OCF-12, OCF-13, OCF-14, OCF-15, OCF-16, OVMS-1, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-6, OVMS-7, RFP-1, RFP-2, RFP-3, RFP-4	Research practice	
	GC-2, GC-3, GC-4, GC-9, SC-3, SC-9, SC-10	OCF-2, OCF-9, OCF-10, OCF-11, OCF-14, OVMS-1, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-6, OVMS-7, RFP-4	Present practice	
			Module 2	
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC-9, GC-10, 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	OCF-1, OCF-2, OCF-3, OCF-4, OCF-5, OCF-6, OCF-7, OCF-8, OCF-9, OCF-10, OCF-11, OCF-12, OCF-13, OCF-14, OCF-15, OCF-16, OVMS-1, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-6, OVMS-7, RFP-1, RFP-2, RFP-3, RFP-4	Research practice	
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC-9, GC-10, SC-1, SC-2, SC-3, SC-4, SC-5, SC-6, SC-7, SC-8, SC-9, SC-	OCF-1, OCF-2, OCF-3, OCF-4, OCF-5, OCF-6, OCF-7, OCF-8, OCF-9, OCF-10, OCF-11, OCF-12, OCF-13, OCF-14, OCF-15,	Pre-Degree Industrial Practice	

	10, SC-11, SC-12, SC-13, SC-14	OCF-16, OVMS-1, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-6, OVMS-7, RFP-1, RFP-2, RFP-3, RFP-4		
	GC-1, GC-2, GC-3, GC-4, GC-5, GC-6, GC-7, GC-8, GC-9, GC-10, 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	OCF-1, OCF-2, OCF-3, OCF-4, OCF-5, OCF-6, OCF-7, OCF-8, OCF-9, OCF-10, OCF-11, OCF-12, OCF-13, OCF-14, OCF-15, OCF-16, OVMS-1, OVMS-2, OVMS-3, OVMS-4, OVMS-5, OVMS-6, OVMS-7, RFP-5, RFP-1, RFP-2, RFP-3, RFP-4	2.2.4 Additional credits for the preparation of a master's degree (1.2.5)	8,0
			SUM TOTAL 2.2	31,5
			SUM TOTAL	90,0

Table 4 - Matrix of conformity of program competences to educational components

The code of the discipline for the curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	2.2.1	2.2.2	2.2.4	2.2.3 Module 1		2.2.3 Module 2	
															Research practice	Present practice	Research practice	Pre-Degree Industrial Practice
IK	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
GC-1						+			+		+	+		+	+		+	+
GC-2	+	+	+	+	+	+		+		+	+	+		+	+	+	+	+
GC-3		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+
GC-4			+	+	+	+	+		+		+			+	+	+	+	+
GC-5						+	+		+		+	+	+	+	+	+	+	+
GC-6			+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
GC-7	+					+	+	+	+	+	+	+	+	+	+	+	+	+
GC-8	+	+		+		+		+	+	+	+			+	+		+	+
GC-9		+	+	+						+				+	+	+	+	+
GC-10				+					+		+	+	+	+	+	+	+	+
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 - Matrix of ensuring programmatic learning outcomes by the relevant components of the Educational and Professional Program

The code of the discipline for the curriculum	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	2.2.1	2.2.2	2.2.4	2.2.3 Module 1		2.2.3 Module 2	
															Research practice	Present practice	Research practice	Pre-Degree Industrial Practice
OCF-1						+			+	+	+			+	+		+	+
OCF-2			+					+	+		+	+		+	+	+	+	+
OCF-3									+		+	+	+	+	+		+	+
OCF-4									+		+	+	+	+	+		+	+
OCF-5		+						+			+			+	+		+	+
OCF-6							+	+			+			+	+		+	+
OCF-7							+				+			+	+		+	+
OCF-8									+		+			+	+		+	+
OCF-9							+				+	+	+	+	+	+	+	+
OCF-10		+				+		+			+			+	+	+	+	+
OCF-11		+			+			+	+	+	+	+		+	+	+	+	+
OCF-12										+	+		+	+	+		+	+
OCF-13					+						+	+		+	+		+	+
OCF-14	+	+		+		+					+			+	+	+	+	+
OCF-15									+	+	+		+	+	+		+	+

OCF-16	+	+				+					+			+	+		+	+
OVMS-1				+			+				+			+	+	+	+	+
OVMS-2	+	+	+	+		+	+	+	+	+	+	+		+	+	+	+	+
OVMS-3	+					+					+	+	+	+	+	+	+	+
OVMS-4	+	+		+							+	+		+	+	+	+	+
OVMS-5	+	+		+			+	+	+	+	+	+		+	+	+	+	+
OVMS-6			+		+						+		+	+	+	+	+	+
OVMS-7	+	+						+	+	+	+	+		+	+	+	+	+
RFP-1											+			+	+		+	+
RFP-2											+			+	+		+	+
RFP-3											+			+	+		+	+
RFP-4					+						+		+	+	+	+	+	+

III - FORMS OF ATTESTATION OF HIGHER EDUCATION BUILDERS

<p>Forms of certification of applicants for higher education</p>	<p>A mandatory form of state certification establishes the implementation and protection of qualifying (diploma) works (projects).</p> <p>The system of competencies and learning outcomes indicated in sections IV and V are issued to the state attestation.</p> <p>The main means of objective control of the degree of achievement of the ultimate goals of education and professional training of masters is the technology for the implementation and protection of qualification (diploma) works (projects), which is defined in the following documents: Regulation on EC, Methodological guidelines for the implementation of qualification (diploma) projects (works)</p>
<p>Requirements for final qualification work (in the presence)</p>	<p>Requirements for the final qualification work are set out in the Methodological Guidelines for the implementation of qualification (diploma) projects (works).</p> <p>The final qualification work is accompanied by a review by the supervisor and a reviewer's review, which is based on verification of the completeness of the tasks, the quality of work in general and its verification of plagiarism.</p>
<p>Requirements for the certification / single state qualification exam (exams) (in the presence)</p>	<p>Not provided</p>
<p>Requirements for public security (demonstrations) (in the presence)</p>	<p>Requirements for public security are formulated in the Regulation on EC and methodological guidelines for the implementation of qualification (diploma) projects (works).</p>

IV - Requirements for the system of internal quality assurance in higher education

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

Components of the system of internal quality assurance in higher education	Definitions, references and relevant documents
Principles and procedures for ensuring the quality of education	<ul style="list-style-type: none"> - Law of Ukraine "On Higher Education" of 01.07.2014 №1556-VII; - Temporary provision on the organization of the educational process at the SHEI USUCT (Order of the Rector of the SHEI USUCT dated 30.11.2015 №290); - Regulations on the diploma with honors from the SHEI USUCT (Order of the Rector of the SHEI USUCT from 25.02.2016, №55); - Regulations on the procedure for the creation and organization of the work of the examination commission at the Secondary School of Economics and Business Administration of Ukraine (Rector's Order dated 01.04.2015, №68); - Regulations on the development of approval and review of working programs of educational disciplines (Order of the Rector of the SHEI USUCT dated 01.12.15, №291)
Monitoring and periodic review of educational programs	Annual monitoring of industry and labor market requirements, revision of educational programs, curriculum work plans, work syllabus of academic disciplines. About approval of the composition of the project groups for the development of educational programs (Order of the Rector of the SHEI USUCT dated 10.03.2016, №74)
Annual assessment of higher education applicants	Regulations on the organization of rector's control over the quality of education (Order of the Rector dated 17.03.2014, №78)
Annual evaluation of scientific-pedagogical and pedagogical workers of a higher educational	Regulations on the commission of rector's control pedagogical skills of scientific and pedagogical workers of the University (Order of the Rector of the SHEI USUCT dated 04.04.2016, №85), Order of application of the rating system for the assessment of the activity of

establishment	<p>scientific and pedagogical workers of the SHEI USUCT (Order of the Rector dated 04.06.2010, №209 with changes to the order of 09.06.2011. №147), The procedure for applying the rating system for the assessment of the activities of the departments and faculties of the Secondary School of Economics and Management of the SHEI USUCT (Order of the Rector dated 04.06.2010, №209).</p> <p>Regularly publishing the results of such assessments on the official website of the higher education institution, on information stands and in any other way.</p>
Improvement of qualification of scientific and pedagogical, pedagogical and scientific workers	<p>Raising the qualification of scientific and pedagogical workers is carried out in accordance with the provision approved by the order of the Ministry of Education and Science of Ukraine from 24.01.2013. №48 and the Regulations on the upgrading of qualifications and internship of pedagogical and scientific-pedagogical workers of the SHEI USUCT (Order of the Rector of the SHEI USUCT dated 28.05.2016, №105)</p>
The availability of the necessary resources for the organization of the educational process	<p>Educational, methodological, logistical and personnel support corresponds to licensing conditions (CM decision dated 30.12.2015 №1187) of educational activity. License Serial AE №636496. Certificates in the field of training and specialties.</p>
Availability of information systems for effective management of the educational process	<p>The temporary provision on the organization of the educational process at the SHEI USUCT (Order of the Rector of the SHEI USUCT dated 30.11.2015 №290) is supported by the Information-analytical control system of the educational process, which consists of subsystems: Applicant, Educational process.</p>
Publicity of information about educational programs, degrees of higher education and qualifications	<p>Information about educational programs, degrees in higher education and qualifications is publicly available and fully disclosed on the official web-portal of the university http://udhtu.com.ua</p>
Prevention and Detection of Academic Plagiarism	<p>Verification of the completeness of the tasks, the quality of work in general and its verification for plagiarism is carried out by the teacher - the head of the course or diploma work (project) in the established procedure with the use of the appropriate software.</p>