

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL TECHNICAL UNIVERSITY
"KHARKIV POLYTECHNIC INSTITUTE"**

APPROVED

Rector of NTU "KPI"

_____ E. Sokol

«___» _____ 2019

**Educational and professional programs
"OCCUPATIONAL SAFETY AND HEALTH"**

Second level of higher education

Specialty 263 Civil security

26 area of expertise Civil security

Qualifications: Master's degree in Occupational safety and health

APPROVED

Academic Council of NTU "KPI"

Chairman of the Academic Council

_____ L. Tovazhnyansky

Protocol № _____ from

"___" _____ 2019

Kharkiv 2019

LETTER approval
educational and professional program

Educational level	<u>The second (Master)</u>
Branch of knowledge	<u>26 Civil security</u>
Specialty	<u>263 Civil security</u>
Specialization	<u>263-1 Occupational safety and health</u>
Qualification	<u>Master of Occupational safety and health</u>

APPROVED

Scientific-methodical commission
on specialty "Civil security"
Head of Commission
_____ V. Berezutskyi
" ___ " _____ 2019

RECOMMENDED

Methodical Council NTU "KPI"
Deputy Chairman of the methodological
council
_____ R. Myhuschenko
" ___ " _____ 2019

APPROVED

Head of Department "Labor and envi-
ronment protection"
_____ V. Berezutskyi
" ___ " _____ 2019

APPROVED

Director of Learning and Research
Institute of Mechanical Engineering
and Transport
_____ V. Epifanov
" ___ " _____ 2019

APPROVED BY FORCE

**Order of the rector of the National Technical University "Kharkiv Polytechnic
Institute" from " ___ " _____ 20 ___ № _____**

PREFACE

Program was developed with the Working Group of Department “Labor and environment protection” of the Learning and Research Institute of Mechanical Engineering and Transport of the National Technical University "Kharkiv Polytechnic Institute". Program is based on the standard of higher education in the specialty Ukraine 263 "Civil security" and including:

1. Doctor Science, Full Professor V. Berezutskyi – Head of Department “Labor and environment protection”, the head of the working group (guarantor of the education program).

2. PhD, Full Professor V. Rayko – Full Professor of Department “Labor and environment protection”.

3. PhD, Associate Professor E. Semenov – Associate Professor of Department “Labor and environment protection”.

I. Profile program for professional learning in the specialty 263 "Civil security"

1 - General Information	
High school and a structural unit	National Technical University "Kharkiv Polytechnic Institute" Department of occupational safety and environmental
The degree of higher education and learning in the original language title	Master. Master of Occupational safety and health
The official name of the educational program	Educational and professional programs in specialty 263 "Civil security"
Type diploma and scope of the educational program	Master's degree, a single, 90 ECTS credits, learning period - 1.4 years.
Having accreditation	UD certificate № 21003304 valid until 07.01.2024 p.
Cycle / level	Ukraine NLC - 8 level. FQ-EHEA - second cycle EQF LLL - level 7
Background	availability of educational degree "Bachelor".
Language teaching	Ukrainian language.
The validity of the educational program	5 years
Internet - address stationing describing an educational program	http://web.kpi.kharkov.ua/safetyofliving/uk/study/
2 - The aim of the educational program	
Formation of professional identity, able to solve difficult non-standard tasks and challenges in the field of Occupational safety and health able to practice, which possess adequate competences needed to identify and assess potential sources of hazards of different nature in the operation of facilities management.	
3 - Characteristics of the educational program	
Subject region (discipline, specialty, specialization)	Learning highly qualified specialists for practical management activities in the field of civil protection, industrial and technological safety. The theoretical content of the subject area are methods and optimization techniques, design, modeling, development and operation. Competitor higher education in this subject area must have the knowledge and skills aimed on the development strategy in the field of civil protection, industrial and technological security; economic evaluation of proposed engineering solutions; organization and implementation of modern management systems of technological and professional risk of enterprises; development and implementation of complex organization. Technical and special events aimed on civil defense and safety.
Aspect education applications	The program is based on a system of general and special methods, professional techniques needed for learning in civil and technological safety and health.
The main focus of the educational program and specialization	Special education and learning in the field of Occupational safety and health and safety.
Specifics applications	The program provides mastering basic methods of research and mandatory pre-diploma practice in leading professional companies and organizations.

4 - Suitability graduates for employment and further education	
Eligibility for employment	<p>Professional works under the name DC 003:2010: "Head of the Division of Operational Rescue Service of Civil Protection preventive measures" code KP 1229.7; "Head of the Division of constant readiness for emergency action" code KP 1229.7; "Civil Defense Chief of Staff," Code 1210.1. "Safety Engineer" code KP 2149.2; "Engineer maintenance work" KP2149.2 code; "Engineer technogenic and ecological safety" code KP2149.2; "Expert working conditions" Code 2412.2 CP 2 and hold primary positions listed in the Handbook of qualifying characteristics trades workers MOE Ukraine (Issue 92):</p>
Further learning	Students can continue studying in Ukrainian Universities and abroad on the third (educational - academic) level of higher education and learning and further postgraduate education.
5 - Teaching and Assessment	
Teaching and Learning	Problem-oriented learning is conducted through lectures, workshops, consultations, independent study, implementation of the settlement, settlement and graphic assignments, term papers, based on textbooks, manuals, scientific publications, using of Internet, learning through research work .
Evaluation	<p>Evaluation of students educational achievements are in the system ECTS.</p> <p><i>Current control</i> - spoken and written surveys, assessment work in small groups, testing, defense of group and individual research tasks and projects.</p> <p><i>Final control</i> - spoken and written exams, credits are accumulated points of based current control, protection of reports and practices, protection of coursework.</p> <p><i>State attestation</i> - Preparation and public defense (presentation) final qualifying.</p>
6 - Software competence	
Integral Competence (IC)	IC. Special ability to solve complex problems and practical problems in the field of civil protection, industrial and technological safety during practice or during learning, which involves research and / or innovation and implementation, is characterized by complexity and uncertainty conditions.
General competence (GC)	<p>GC 1. The ability to determine their own goals and objectives and collective action, organize and lead the work of the team, readiness for leadership.</p> <p>GC 2. The ability to formulate a personal opinion and convincingly present views on engineering decisions and administrative actions in a particular area facility.</p> <p>GC 3. System capacity for creative thinking, perseverance professional and research activities.</p> <p>GC 4. The ability to search, processing and synthesis of professional, scientific and technical information.</p> <p>GC 5. Accented ability to articulate thoughts in speech and writing in native and foreign language.</p> <p>GC 6. The ability of their results presentation and collective professional and research activities.</p> <p>GC 7. The ability to implement measures to prevent emergency situations and sustainable operation of enterprises and predict and evaluate</p>

<p>Professional competence specialty (SC)</p>	<p>the socio-economic consequences of emergency situations to objects.</p> <p>SC 1. The ability to manage work and strategic development staff in the course of professional activities and operations of the company or organization in emergency mode.</p> <p>SC 2. Knowledge at the latest advances necessary for research and / or innovation in the field of civil protection or safety.</p> <p>SC 3. The ability to apply interdisciplinary approaches to understanding of critical issues in the field of technological security, civil defense or safety.</p> <p>SC 4. The ability to use principles, methods and organizational procedures, research and / or innovation.</p> <p>SC 5. The ability to apply theory to practice management decisions and methods of expert opinion.</p> <p>SC 6. The ability to organize monitoring of emergencies sources and analyze results, development scientifically grounded recommendations for measures of prevention and eradication of emergencies.</p> <p>SC 7. The ability to apply new approaches (methods) to analyze processes, facilities and state forecasting possible causes of disasters to assess the risks and possible consequences.</p> <p>SC 8. The ability to prove their knowledge's and findings to specialists and non-specialists</p> <p>SC 9. The ability to optimize methods and tools designed to terminate hazards, life-saving and preserving human health and livelihood of the population organized.</p> <p>SC 10. The ability to create their own models of modern systems for protect of the population and territories through the creative application of knowledge.</p> <p>SC 11. To be ready to implement practical measures in specific circumstances (methods) to protect the population in emergency situations</p> <p>SC 12. To provide organizational and educational activities for acquiring knowledge workers and the public needed to preserve the life and health of people in emergency situations and during the execution of urgent works in the emergency area or lesion.</p> <p>SC 13. The ability to examine regulations at civil protection, project planning documentation and construction projects for technological safety.</p> <p>SC 14. The ability to conduct an economic evaluation of the effectiveness of engineering civil defense measures</p> <p>SC 15. The ability to analyze, optimize and apply modern information technology solutions in the professional or academic problems.</p> <p>SC 16. The ability to implement new methods aimed at regulating technological safety, evaluation of risk.</p>
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7 - Program Learning Outcomes

- LO 1. Know and understand aspects of basic and applied science related to man-made and natural security.
- LO 2. To be able to use the fundamental laws of careers.
- LO 3. To know basic concepts of civil protection, safety, sustainability and methodology of scientific knowledge.
- LO 4. To integrate knowledge from different fields to solve theoretical and / or practical tasks and problems.
- LO 5. To know the legal and ethical standards for the evaluation of professional activities, development and implementation of socially important projects aimed at regulating man-made and natural security of health and human efficiency in the labor process.
- LO 6. The ability to plan implementation of research and / or innovation task and formulate opinions on its results, develop and present research papers, theses, abstracts, reports.
- LO 7. To demonstrate the ability to organize collective action and implement complex projects aimed at regulating man-made and natural security of health and human efficiency in the labor process, taking into account of available resources and time constraints.
- LO 8. To know the methods of modern research, tools and example risk occurrence, possible source of emergencies, including methods and facilities of mathematical and informational simulation.
- LO 9. To anticipate and identify areas of high risk and technogenic pollution.
- LO 10. To determine likelihood, trends and dynamics of emergencies, accidents and other dangerous events.
- LO 11. To analyze the situation and possible causes of an accident, an accident at work, accidents and assess its effects.
- LO 12. Conduct analysis of legal, organizational, technical and other measures at civil protection, safety and technological safety.
- LO 13. To communicate on a foreign language in scientific, industrial, social and public sectors.
- LO 14. Possess skills of public speaking, debate Locations Communicate professional knowledge, their study and conclusions of the experts emergency services and groups and the general public.
- LO 15. To use modern information resources in the professional field.
- LO 16. To apply new approaches to develop a strategy for making decisions in difficult conditions unpredictable.
- LO 17. To demonstrate awareness of new principles and protection methods of territory, environment and property from emergencies, create a new model of security, to develop and propose recommendations for practical application of the experiment results.
- LO 18. To evaluate the level of risk during an emergency (accident) and the possibility of units designed to perform the tasks of civil protection corresponding functional orientation.
- LO 19 Perform and protect the technical and economic analysis of measures to improve safety.
- LO 20. Elaborate system of civil protection, safety, and emergency companies, institutions, organizations.
- LO 21. To know the basics of design, expert analysis and performance evaluation studies.
- LO 22. Perform expertise in the field of civil protection, projects and project planning documentation.
- LO 23. Conduct a survey of technical condition, situation with civil

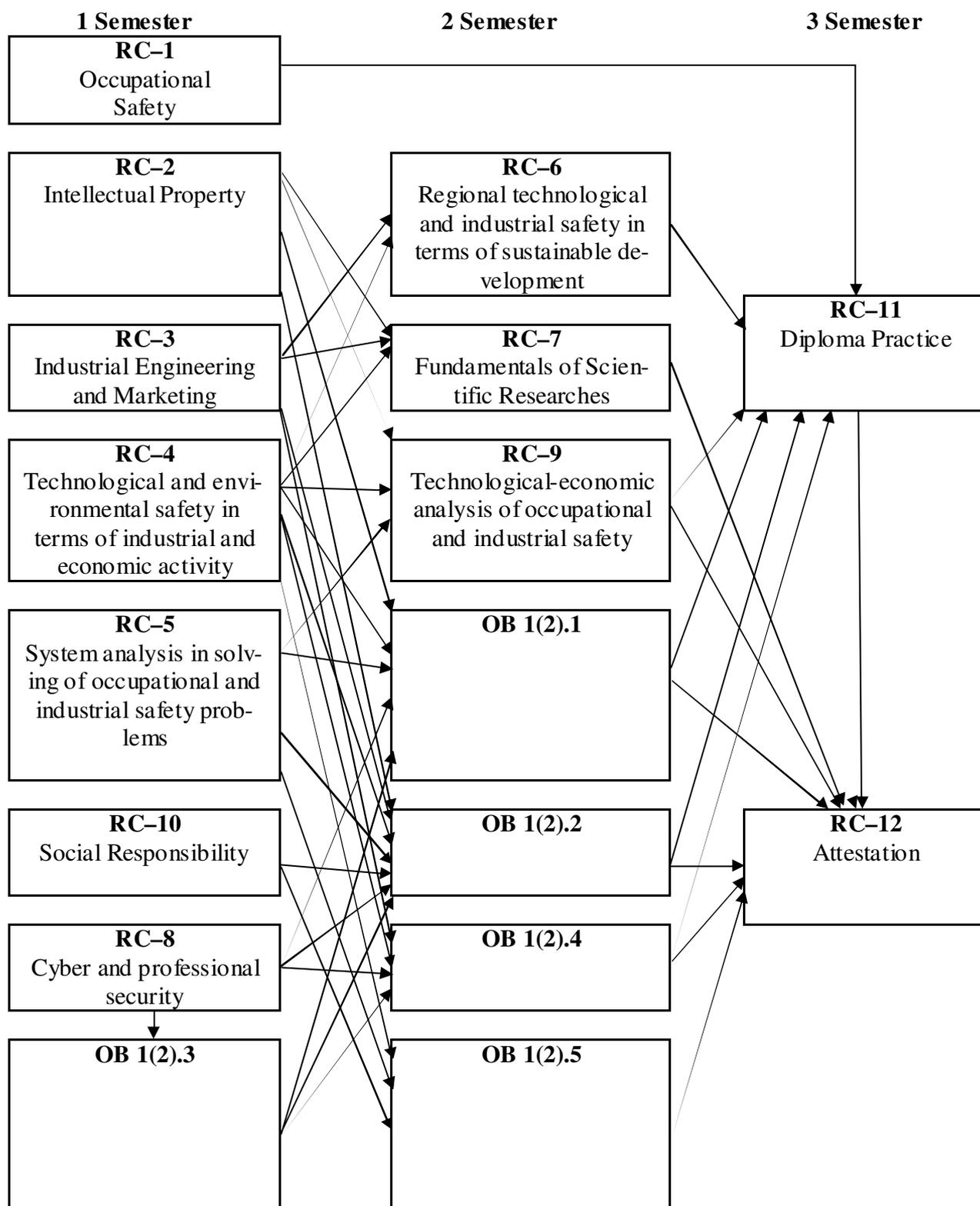
	defense, technological and industrial safety facilities, buildings, utilities and its certification.
8 - Source of the program	
Staffing	All scientific and teaching staff graduating department and other departments involved in teaching subjects, capable of providing a high level of teaching, learning and teaching work. Scientific-pedagogical profile matches specializing in disciplines taught it.
Material - technical support	Material and technical base of the chair is a modern and fully meets state requirements concerning learning of experts declared specialty.
Information and educational - methodical support	Educational and methodical discipline curriculum available in full, which forms the basis for quality training.
9 - Academic Mobility	
National credit mobility	
International credit mobility	Does not exist.
Learning of foreign higher education candidates	Perhaps after studying Ukrainian language course.

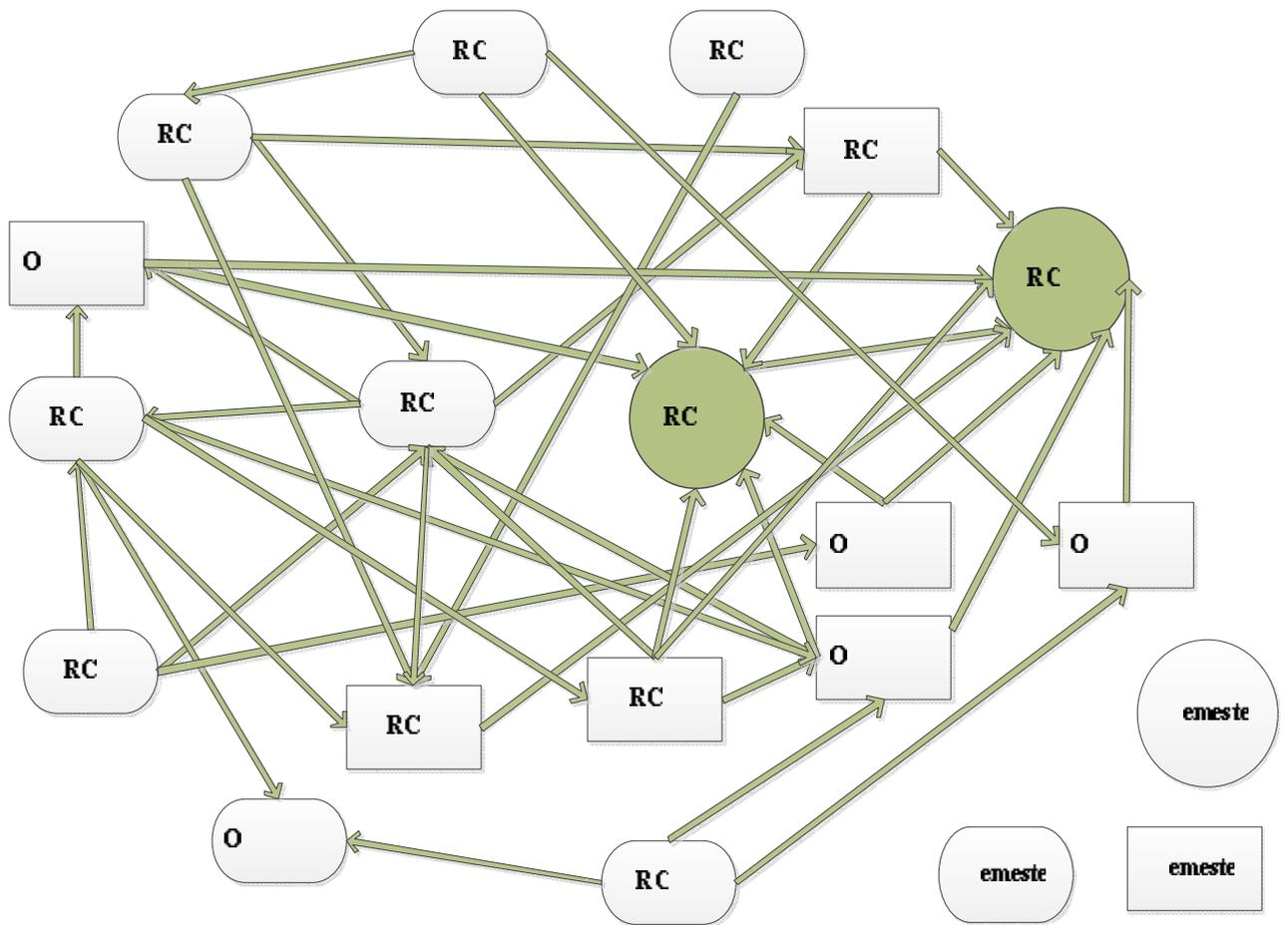
2. The list of components and structural-logical scheme of educational and professional programs and its logical sequence

Code n/a	Components of educational programs (learning courses, course work, practice, qualifying works	Number of credits	Form, results, control
Required components OP			
General training			
RC-1	Occupational Safety and Health	3	Test
RC-2	Intellectual Property	3	Test
RC-3	Industrial Engineering and Marketing	3	Test
Professional training			
RC-4	Technological and environmental safety in terms of industrial and economic activity	5,0	Exam
RC-5	System analysis in solving of occupational and industrial safety problems	4,0	Test
RC-6	Regional technological and industrial safety in terms of sustainable development	4,0	Exam
RC-7	Fundamentals of Scientific Researches	3,0	Exam
RC-8	Cyber and professional security	4,0	Exam
RC-9	Technological-economic analysis of occupational and industrial safety	4,0	Test
RC-10	Social Responsibility	4,0	Test
RC-11	Diploma Practice	15,0	Test
RC-12	Attestation	15,0	Thesis defense
Total mandatory component		67	
Selected components OP			
Selective block 1 «Labor Protection»			
OB 1.1	Equipment and design of engineering systems to provide skills and safety	4,0	Exam
OB 1.2	Risk management using equipment and technologies	6,0	Exam
OB 1.3	Organization of safe power consumption	4,0	Exam
OB 1.4	Organizational and technical support audit of professional industry works security	6,0	Exam
OB 1.5	Examination and inspection in industrial construction and civil protection	3,0	Exam
Selective block 2 «Technological safety»			
OB 2.1	The theoretical basis of the civil protection experimental study	4,0	Exam
OB 2.2	Expert-analytical grade equipment of the increased risk	6,0	Exam
OB 2.3	The institutional framework decision on prevention and emergency response	4,0	Exam
OB 2.4	Technology and engineering for sustainable development	6,0	Exam
OB 2.5	Evaluation of a industrial enterprise technological safety	3,0	Exam
The total volume of sample components:		23	
GENERAL PROGRAM QUOTA		90 credits	

2.2 Structure and logic circuit OP

Semester	The content of learning activities
1	RC 1; RC 2; RC 3; RC 4; RC 5; RC 8; RC 10; OB 1.3(2.3)
2	RC 6; RC 7; RC 9; OB 1.1(2.1); OB 1.2(2.2); OB 1.4(2.4); OB 1.5(2.5)
3	RC 11; RC 12





2.3 Distribution content of educational programs for groups of components and cycle learning

№	Cycle learning	Workload applicant higher education (ECTS credits /%)		
		Required components of the educational and professional program	Selected components of the educational and professional program	Total for the entire period of study
1	The cycle of general learning	9 / 10	-	9 / 10
2	Cycle learning	58 / 64	-	58 / 64
3	Subjects of free choice	-	23 / 26	23 / 26
Total for the entire period of study		67 / 74	23 / 26	90 / 100

3. The form of the higher education applicants certification

Certification Education Program is graduated 263 specialty "Civil security" held in the form of protection bachelor qualification work. Certification is carried out openly and publicly. The results of the successful implementation of the educational program are the document on higher education of the sample and awarded a Master of Education and qualification: Master of Occupational safety and health.

4. Matrix compliance software components competencies Education Program

	RC-1	RC-2	RC-3	RC-4	RC-5	RC-6	RC-7	RC-8	RC-9	RC-10	RC-11	RC-12	OB 1.1	OB 1.2	OB 1.3	OB 1.4	OB 1.5	OB 2.1	OB 2.2	OB 2.3	OB 2.4	OB 2.5
GC1		+	+							+												
GC2	+											+		+		+	+					
GC3							+					+						+		+		
GC4					+				+		+	+	+									
GC5	+					+				+	+					+	+		+			+
GC6				+	+							+					+	+	+			+
GC7	+			+				+				+			+						+	
SC1	+												+	+							+	
SC2					+	+	+							+				+			+	
SC3	+		+		+					+	+		+			+						+
SC4		+				+	+					+			+			+		+	+	
SC5	+	+							+	+			+	+			+	+	+			
SC6								+					+	+		+						+
SC7					+				+			+		+					+			
SC8				+			+		+		+	+			+		+					+
SC9								+				+			+						+	
SC10				+	+			+				+		+							+	
SC11	+						+						+		+		+					
SC12	+			+									+	+								
SC13					+												+		+			
SC14			+		+				+										+			
SC15						+	+	+														+
SC16					+		+							+				+				

5. Matrix Software learning outcomes (LO) corresponding component of the educational program

	RC-1	RC-2	RC-3	RC-4	RC-5	RC-6	RC-7	RC-8	RC-9	RC-10	RC-11	RC-12	OB 1.1	OB 1.2	OB 1.3	OB 1.4	OB 1.5	OB 2.1	OB 2.2	OB 2.3	OB 2.4	OB 2.5	
LO 1				+		+			+		+	+											
LO 2		+	+								+	+	+		+								
LO 3	+					+		+							+		+			+			
LO 4				+	+			+					+	+	+		+						
LO 5	+					+			+	+							+		+				+
LO 6					+	+	+											+		+			+
LO 7									+	+						+	+			+			+
LO 8					+		+		+					+				+			+	+	+
LO 9				+		+			+		+	+						+			+	+	+
LO 10					+			+	+		+	+		+		+			+				+
LO 11				+	+		+				+	+	+		+		+						
LO 12									+							+	+						+
LO 13										+	+	+											
LO 14										+	+	+											
LO 15							+	+			+	+									+		
LO 16					+				+		+	+		+					+				+
LO 17				+	+	+			+		+	+	+	+	+						+		
LO 18	+			+	+								+	+	+	+							
LO 19				+					+		+	+	+		+				+				+
LO 20				+	+															+			
LO 21							+		+	+	+						+		+				
LO 22											+		+				+		+				
LO 23											+		+	+	+	+	+						

Head of Department "Labor and environment protection"

V. Berezutskyi

Head of the support team in the specialty

V. Berezutskyi