MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

MINISTRY OF EDUCATION, YOUTH AND SPORTS OF THE CZECH REPUBLIC

Czech University of Life Sciences Prague (CZU)

Sumy National Agrarian University

EDUCATIONAL AND PROFESSIONAL PROGRAM

«Agricultural Engineering»

Level of higher education: second (master's) MSc

Higher Education Degree: Master

Branch of knowledge 20 Agricultural sciences and food

Specialty: 208 Agroengineering

Qualification: Master in "Agroengineering"

Prague - Sumy 2024

APPROVAL LETTER

educational and professional program "Agricultural Engineering"

specialty 208 Agroengineering

second (master's) MSc level of higher education

Project (working) group:

Project Team Leader (guarantor of educational and professional program): _____ **Tetiana KHVOROST**

Project team members:

_____ **Jiří MAŠEK**

_____ **František KUMHÁLA**

_____ **Vladyslav ZUBKO**

_____ **Mykhailo SHULYAK**

_____ **Olexandr IVCHENKO**

_____ **Svitlana KHURSENKO**

_____ **Mykhailo DUMANCHUK**

_____ **Farida KHARCHENKO**

_____ **Yevhen REDKO**

Agreed:

Vice-rector for scientific and pedagogical and educational work _____**Ihor KOVALENKO**

Head of Educational Department _____**Natalia KOLODNENKO**

Acting Head of the Department of Education Quality, licensing and accreditation _____**Olena RYBINA**

Head of FET Student Government _____**Yevhen REDKO**

I. Preamble

The educational and professional program "Agricultural Mechanization" of the field of knowledge 20 "Agrarian Sciences and Food" of specialty 208 Agroengineering of the second (master's) level of higher education is developed on the basis of the standard of higher education of Ukraine, approved by the order of the Ministry of Education and Science No. 965 of 10.07.2019.

The standard of higher education of Ukraine specialty 208 Agroengineering of the field of knowledge 20 Agrarian sciences and food of the second (master's) level of higher education, the degree of higher education "Master" was developed in accordance with the Law of Ukraine dated 01.07.2014 No1556-VII "On Higher Education", resolutions of the Cabinet of Ministers of Ukraine dated 23.11.2011 No1341 "On approval of the National Qualifications Framework", dated 29.04.2015 No. 266 "On approval of the list of branches of knowledge and specialties, for which higher education applicants are trained", "On approval of the Licensing conditions for conducting educational activities of educational institutions" dated 30.12.2015, Regulations on the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine, approved by the order of the Ministry of Education and Science of Ukraine dated 11.09.2015 No. 922 (as amended by the order of the Ministry of Education and Science of Ukraine dated 27.10.2015 No. 1115), the National Classifier of Ukraine "Classifier of Professions", approved by the order of the State Committee for Consumer Standard Ukraine dated 28.07.2010 No. 237 (as amended), taking into account the Methodological recommendations for the development of higher education standards approved by the higher education sector of the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine (protocol of 29.03.2016 No3), methodological recommendations "Development of educational programs. Methodical recommendations" (2014) and on the basis of the draft standard of higher education of Ukraine, developed by members of the subcommittee 208 – "Agroengineering" of the Scientific and Methodological Commission.

DEVELOPERS OF EDUCATIONAL AND PROFESSIONAL PROGRAM

The educational and professional program was developed by the project (working) group consisting of:

Tetiana Khvorost	Ph.D., Associate Professor, Department of Occupational Safety and Physics Head of the Project Group (guarantor of the educational and professional program), Sumy National Agrarian University
Mašek Jiří	doc. Ing. Ph.D., Dean of the Faculty of Engineering**,** member of the project team, Czech University of Life Sciences Prague
František Kumhála	prof. Dr. Ing.**,** head of Agricultural Machines Department, member of the project team, Czech University of Life Sciences Prague
Zubko Vladislav	Prof. Dr. Ing. Academician of the AESU, Dean of the Faculty of Engineering and Technology, member of the project team.
Shulyak Mikhail	Doctor of Technical Sciences, Professor, Head of the Department of Agroengineering of SNAU, member of the project team.
Ivchenko Olexandr	Ph.D., Associate Professor, Head of Department of Engineering Systems Design of SNAU, member of the project team.

Khursenko Svitlana	Ph.D., Associate Professor, Head of the Department of Occupational Safety and Physics of SNAU, member of the project team.
Dumanchuk Mykhailo	Ph.D., Senior Lecturer, Department of Technical Services of SNAU, member of the project team.
Farida Kharchenko	Ph.D., Associate Professor, Department of Agroengineering of SNAU, member of the project team.
Redko Yevhen	Student of the Faculty of Engineering and Technology

II. General characteristics of the educational and professional program

1 – General information	
Full name of the higher educational institution and structural unit	Czech University of Life Sciences Prague Faculty of Engineering Sumy National Agrarian University Faculty of Engineering and Technology
The official name of the educational program	Agricultural Engineering
Level of higher education	Second (master's) MSc
Name of the field of knowledge	20 Agricultural sciences and food
Name of specialty	208 Agroengineering
Higher education degree and qualification title in original language	Master. Master in Agroengineering.
Qualification in diploma	Higher Education Degree – Master Specialty – 208 Agroengineering Educational and professional program – Agricultural Engineering
Type of diploma and scope of educational program	Master's degree, single, 120 ECTS credits, term of study 2 years. More than 35% of the educational and professional program is aimed at obtaining general professional (special) competencies in the specialty defined by the Standard of Higher Education.
Availability of accreditation	
Loop/level	HPK – 7 level , F Q-E HEA – the second cycle, EQF LLL – 7 level
Premise	The conditions of admission are determined by the presence of a higher education degree "Bachelor", "Specialist" or "Master" and "Admission rules for higher education at Sumy National Agrarian University"
Restrictions on forms of education	Missing
Language(s) of instruction	English
The duration of the educational program	The validity of the educational and professional program "Agricultural Engineering" from September 1, 2023 until the next revision
Internet address of permanent placement of educational program description	https://snau.edu.ua/zabezpechennya-yakosti-osviti/osvitni-programi
2 – The purpose of the educational program	
The purpose of the educational and professional program "Agricultural Engineering" is to provide fundamental theoretical, practical and professional training of masters in specialty 208 Agroengineering in an international environment, capable of solving complex problems and problems in the field of agricultural production and in the learning process, which include research, development and implementation of technical and organizational solutions for the operation and optimization of production systems in the industry with the provision of resource saving and environmental safety.	
3 – Characteristics of the educational program	
Subject area (field of knowledge, specialty,	Orientation of EPP and description of the subject area: the educational and professional program "Agricultural Engineering" is specialized in the study and

specialization (if available))	solution of complex problems and problems of technical and technological support of crop production, animal husbandry, processing, transportation and technical service. 20 Agrarian sciences and food, specialties 208 Agroengineering of the second (master's) level of higher education.
Orientation of the educational program and description of the subject area	Educational and professional program for the second (master's) level of higher education. The orientation of the educational and professional program is applied and research in professional activities and international environment. **Object of study and activity:** − machines and means of mechanization in technologies and processes for the production, primary processing, storage, transportation of agricultural products, technical service and repair of agricultural machinery; − digital platforms, intelligent systems and robotics systems in agricultural production; − methods of conducting scientific research of modern agricultural technologies, machinery and means in agro-industrial production in close cooperation with business. **Learning objectives:** − training of specialists capable of using, improving and developing resource-saving and environmentally friendly technologies for the production, transportation and primary processing of agricultural products and able to implement acquired skills in an international environment; − to realize the maximum biological potential of crops by ensuring the quality of mechanized technological operations in accordance with growing conditions with full use of the capabilities of machinery and assistance in agricultural production; − mastering by higher education students the methods of using robotic systems and assistance in agricultural production; **Theoretical content of the subject area:** – concept, concept, theory, which is the basis for effective operation and development of advanced technologies and means of mechanization for agricultural production. **Methods, techniques and technologies:** – methods and methods of research of technologies, technological processes, modes of operation of machinery in agricultural production; – methods and techniques for the efficiency of using machines and means of mechanization, the creation of new models and systems based on the study of the results of scientific research and best practices. **Tools and equipment (objects/objects, devices and devices that a higher education student learns to use and use):** Samples of agricultural machinery, digital platforms with computer software, unmanned aerial vehicles, simulators, telematics equipment, Smart training ground.
The main focus of the educational program and specialization	The educational and professional program "Agricultural Engineering" provides an opportunity to obtain professional knowledge in production and technological, research, project activities, management and marketing in agricultural enterprises of the field of knowledge 20 "Agrarian Sciences and Food" in specialty 208 "Agroengineering" of the second (master's) level of higher education. *Keywords:* agricultural technology, machine unit, machine complex, digital platforms, robotic systems, quality assurance, realization of biological potential, research, improvement.
Features of the program	This educational and professional program "Agricultural Engineering" provides for obtaining professional knowledge based on the implementation of EPP

	between SNAU and CZU, which is the basis for studying the functioning of agricultural production and the work of machine-building enterprises in Ukraine and the Czech Republic; involvement of representatives of dealer and service enterprises in training applicants, conducting classes in production - directly in production conditions when performing a specific task. Such features of the implementation of EPP allows applicants to acquire modern knowledge directly from production, to participate in solving trendy problems, to master modern methods of using technology and digital technologies, which allows the applicant to independently plan scientific research.
4 – Eligibility of graduates for employment and further study	
Eligibility for employment	Activities in the field of agro-industrial production, education and science. Advisory activities in the field of production. Administrative, research and teaching activities. According to the current edition of the National Classifier of Ukraine: Classifier of Professions (DK 003: 2010) and International Standard Classification of Occupations 2008 (ISCO-08), a graduate with a professional qualification "Master of Agroengineering" can be employed in positions with the following professional job title: director (head) of a small agricultural enterprise (firm) (1311), heads of production units (1221), chief specialist (1221.1), chief engineer (1221.1), chief and master production unit (1221.2), director (head) of the organization (design, design) (1210.1), director (chief, other head) of the enterprise (1210.1), head of refresher courses (1210.1), mechanical engineer (2145.2), engineer for the operation of machine and tractor fleet (2145.2), research engineer for agricultural mechanization (2145.1), design engineer of machinery and equipment for agricultural production (2149.2), mechanic (3115), organization engineer operation and repair (2149.2), labor protection engineer (2149.2). The specialist is able to perform professional work, the list of which is submitted in accordance with the classifier of professions DK 003: 2010 and can occupy in accordance with DK 003: 2010 the following primary positions: engineer, mechanical engineer, research engineer, design engineer. Place of employment: enterprises of agro-industrial production, enterprises of agrarian engineering, structural subdivisions of the Ministry of Agrarian Policy and Food of Ukraine, research, design and technological institutions, higher education institutions of agrarian profile.
Further studies and academic rights of graduates	The possibility of studying under the program of the third cycle of FQ-EHEA, level 8 EQF-LLL and level 8 HPK. Opportunity to study under the program of the third (educational and scientific) level of higher education. Acquisition of additional competencies in the system of postgraduate education. Training for development and self-improvement in scientific and professional fields of activity, as well as other related fields of scientific knowledge: - training at the 2nd (master's) level in related fields of scientific knowledge; - educational programs, research grants and scholarships (including abroad) containing additional educational components.
5 – Teaching and assessment	
Teaching & Learning	Student-centered learning, technology of problem-based and differentiated learning, technology of intensification and individualization of learning, technology of programmed learning, interactive technology, technology of developmental learning, credit-transfer system of organization of training, e-learning in the Moodle system, self-learning, research-based learning, training through industrial and research practice. Teaching is conducted in the form of: lectures, multimedia lectures, interactive lectures, practical classes, laboratory works, self-study based on textbooks, notes and Internet resources, consultations with teachers, preparation of master's qualification work (graduate work).

Evaluation	Oral and written examinations, tests, practice, qualification exams, thesis. Examinations, tests and differentiated tests are conducted in accordance with the requirements of the university. Types of control: current, intermediate, final, self-control. Assessment of academic progress is carried out according to the 100-point (rating) scale of ECTS, the national 4-point scale ("excellent", "good", "satisfactory", "unsatisfactory") and verbal ("credited", "uncredited") systems. Written examinations with interviews and defense of tickets, submission of reports and defense of laboratory and practical works, essays as independent work, discussions, seminars and modules. Qualification (professional) certification: diploma (master's) work.
6 – Program competencies	
Integral competence (IC)	IC. The ability to solve complex problems and problems in the field of agro-industrial production and in the learning process, which involves research and / or innovation and is characterized by uncertainty of conditions and requirements.
General competencies (GC)	GC. 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to apply knowledge in practical situations. GC 3. Knowledge and understanding of the subject area and understanding of aspects of professional activity. GC 4. The ability to make informed decisions. GC 5. Ability to work in a team. GC 6. Ability to communicate in a foreign language. GC 7. Skills in the use of information and communication technologies.
Professional (special, subject) competencies (PC)	PC 1. Ability to solve complex managerial tasks and problems in the field of agricultural production. PC 2. Ability to carry out scientific and applied research to create new and improve existing technical and technological systems for agricultural purposes, search for optimal methods of their operation. Ability to apply methods of similarity theory and dimensional analysis, mathematical statistics, queuing theory, system analysis to solve complex problems and problems of agricultural production. PC 3. Ability to use modern methods of modeling technological processes and systems to create models of mechanized technological processes of agricultural production. PC 4. Ability to apply modern information and computer technologies to solve professional problems. PC 5. Ability to solve optimization problems and make effective decisions on the use of machinery and machinery in crop production, animal husbandry, storage, primary processing and transportation of agricultural products. PC 6. Ability to design and use mechatronic systems of machines and means of mechanization of agricultural production. PC 7. Ability to design, manufacture and operate technologies and technical means of production, primary processing, storage and transportation of agricultural products. PC 8. Ability to use methods of management and planning of material and related information and financial flows to increase the competitiveness of enterprises. PC 9. Ability to predict and ensure technical readiness of agricultural machinery. PC 10. Ability to organize agricultural production processes on the principles of precision farming, resource saving, optimal use of nature and nature protection; use agricultural machinery and energy means adapted for use in the precision farming system. PC 11. Ability to obtain and analyze information on trends in the development of agrarian sciences, technologies and technology in agricultural production. PC 12. Ability to use modern principles, standards and methods of quality management, to ensure the competitiveness of technologies and machines in the

	production of crops. PC 13. Ability to use the regulatory framework for legal protection of intellectual property objects that are developed and in economic circulation. PC 14. Ability to guarantee environmental safety in agricultural production. PC 15. Ability to comprehensively implement organizational, managerial and technical measures to create safe working conditions in the agro-industrial complex.
7 – Programmatic learning outcomes	
Learning outcomes (program learning outcomes, PLO)	PLO 1. Possess a complex of necessary humanitarian, natural science and professional knowledge sufficient to achieve other learning outcomes defined by the educational program. PLO 2. Develop energy-saving, environmentally friendly technologies for the production, primary processing and storage of agricultural products. PLO 3. Know, understand and apply the norms of legislation relating to professional activities. PLO 4. Teach in higher education institutions and develop methodological support for special disciplines related to agroengineering. PLO 5. Make informed management decisions to ensure the profitability of the enterprise. PLO 6. Make effective decisions regarding the forms and methods of management of engineering systems in the agro-industrial complex. PLO 7. Plan scientific and applied research, justify the choice of methodology and specific research methods. PLO 8. Create physical, mathematical, computer models for solving research, design, organizational, managerial and technological problems. PLO 9. Apply specialized software and modern information technologies to solve professional problems. PLO 10. Make effective decisions on the composition and operation of machine complexes. PLO 11. Apply mechatronics methods for automation in the agro-industrial complex. PLO 12. Design competitive technologies and equipment for agricultural production in accordance with consumer requirements and legislation. PLO 13. To carry out effective management and optimization of material flows. PLO 14. Ensure the operability and serviceability of machines. PLO 15. Introduce precision farming systems, machines and means of mechanization and choose operating modes of machine-tractor units for the mechanization of technological processes in crop production. PLO 16. Create and optimize innovative technical and technological systems in crop production, animal husbandry, storage of products and technical service. PLO 17. To carry out quality management in the agrarian sector, to substantiate the quality indicators of agricultural products, machinery and equipment. PLO 18. Apply multicriteria models of decision-making in deterministic conditions and under uncertainty when solving professional problems. PLO 19. Ensure the protection of intellectual property. PLO 20. Develop and implement resource-saving and environmental technologies in the field of activity of agricultural enterprises. PLO 21. Develop measures for labor protection in the field of agricultural production in accordance with current legislation.
8 – Resource support for program implementation	
Staffing	Staffing of the educational and professional program: teaching staff with the possibility of attracting foreign specialists and production specialists for participation. Teaching of disciplines is carried out by highly qualified scientific and pedagogical workers, with the involvement of the most experienced specialists in production and research institutions part-time and / or guest lectures (webinars,

	seminars, etc.) by leading domestic and foreign experts.
Material and technical support	The material and technical support of the educational and professional program is determined by the use of specialized laboratories, classrooms, technical means and equipment for the mechanization of agricultural production, the availability of automated workplaces and applied computer programs for conducting classes in professionally oriented disciplines. The educational process may include on-site practical classes of higher education applicants in specialized enterprises of various forms of ownership, educational and industrial practices.
Informational, educational and methodological support	Informational, educational and methodological support is conditioned by the use of specialized software, electronic courses, multimedia and interactive learning technologies. Proper provision of the library with textbooks and manuals, domestic and foreign professional periodicals of the appropriate profile, access to Internet sources, author's developments of the teaching staff. The official website of http://www.snau.edu.ua contains information about educational programs, educational, scientific and educational activities, structural units, admission rules, contacts. Scientific Library of Sumy NAU http://library.snau.edu.ua. Materials of educational and methodological support of educational and professional program are presented at the distance learning center of SNAU https://cdn.snau.edu.ua/moodle/ and in the repository of Sumy NAU http://repo.snau.edu.ua. Reading rooms are provided with free access to the Internet.
9 – Academic mobility	
National credit mobility	It is carried out on the basis of concluding agreements on academic credit mobility with higher education institutions of Ukraine. Clear and understandable rules for recognizing learning outcomes obtained in other educational institutions and in non-formal education have been defined.
International credit mobility	It is envisaged on the basis of concluding agreements on academic credit mobility with higher education institutions of other countries. Within the framework of the EU Erasmus + program on the basis of bilateral agreements between Sumy NAU and educational institutions of partner countries, for this EPP, which is implemented on the principle of a Double Diploma, it is provided: study for 1,2 and 4 semesters in Ukrainian, 3 – in the Czech Republic (for Ukrainian). Diploma defense takes place on the basis of both higher education institutions
Training of foreign applicants for higher education	It is possible to admit citizens of other countries to study on the basis of agreements concluded between the educational institution and foreign educational institutions and organizations and individuals and legal entities.

III. The list of components of the educational and professional program and their logical sequence

The list of components of the educational and professional program

Code	Components of the educational program	Semester	ECTS	Final control form
1. Mandatory components				
1.1. Mandatory components of general training				
MC 1	Фізика процесів і математичні методи наукових досліджень / Physics of processes and mathematical methods of scientific research	1	5,0	Credit
MC 2	Менеджмент, маркетинг та інтелектуальна власність / Management, marketing and intellectual property	1	5,0	Credit
MC 3	Економіка аграрного виробництва та бухгалтерський облік / Economics of agricultural production and accounting	1	5,0	Exam
MC 4	Комунікації в міжнародному середовищі та педагогіка вищої освіти / Communications in the international environment and higher education pedagogy	2	5,0	Credit
MC 5	Охорона праці та основи правознавства /Occupational health and the basics of jurisprudence	2	5,0	Credit
In total		**-**	**25,0**	**-**
1.2. Mandatory components of professional training				
MC 6	Аграрна техніка / Agricultural machinery	1	10,0	Exam
MC 7	Гідравлічні та мехатронні системи / Hydraulic and mechatronic systems	1	5,0	Exam
MC 8	Інформаційні технології та системи точного землеробства / Information technologies and precision farming systems	2	5,0	Exam
MC 9	Первинна обробка / Particular Substance Processing	3	5,0	Exam
MC 10	Властивості позашляховиків / Off-road Vehicles` Properties	3	5,0	Exam
MC 11	Проектування аграрної техніки / Design of Agricultural Machinery	3	4,0	Exam
MC 12	Тенденції розвитку аграрного машинобудування / Trends in Agricultural Engineering	3	5,0	Credit
MC 13	Машини для транспортування, обробки та маніпулювання / Transport, Handling and Manipulation Machinery	3	6,0	Exam
MC 14	Практика / Practice	3	5,0	Credit
MC 15	Обґрунтування інженерно-технологічних рішень / Reasoning of engineering and technological solutions	4	5,0	Exam
MC 16	Кваліфікаційна (професійна) атестація / Qualification (professional) attestation	4	10,0	Exam
In total		**-**	**65,0**	**-**
The total volume of mandatory components		**-**	**90,0**	**-**
2. Selective components				

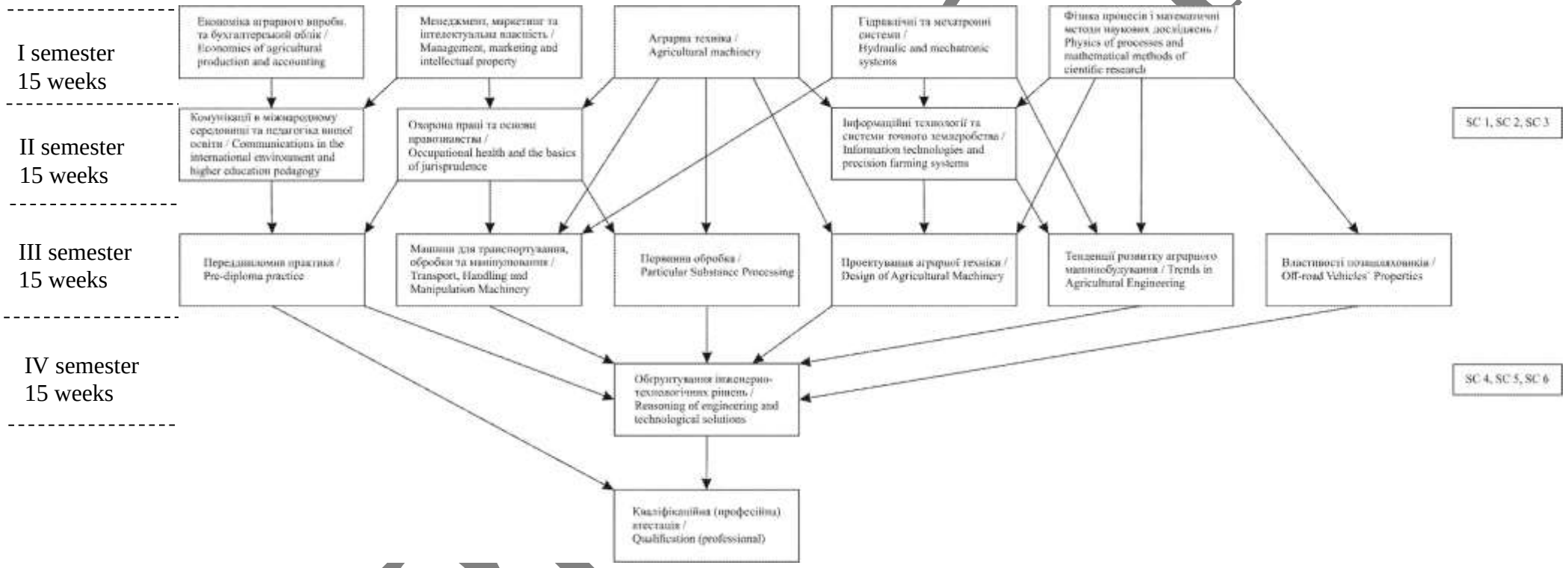
2.1. Selective components of general training*				
SC 1	Selective component 1*	2	5,0	Credit
SC 2	Selective component 2*	2	5,0	Credit
In total		**-**	**10,0**	-
2.2. Selective components of professional training **				
SC 3	Selective component 3**	2	5,0	Credit
SC 4	Selective component 4**	4	5,0	Credit
SC 5	Selective component 5**	4	5,0	Credit
SC 6	Selective component 6**	4	5,0	Credit
In total		**-**	**20,0**	-
The total volume of selective components		**-**	**30,0**	-
TOTAL VOLUME OF THE EDUCATIONAL PROGRAM		**-**	**120,0**	-

Elective components of the educational and professional program are selected by higher education applicants from the proposed list according to the recommendations of Annex A to the EPP with a total amount of 30 credits according to the following recommendations:

* sample components SC 1, SC 2 are selected from the proposed list of selective components of general training in accordance with the recommendations of Annex A to EPP. That is, 2 (two) selective components of general training of 10 credits can be selected;

** selective components SC 3, SC 4, SC 5 and SC 6 are selected from the proposed list of selective components of professional training in accordance with the recommendations of Annex A to EPP. That is, 4 (four) selective components of vocational (professional) training of 20 credits can be selected from the proposed list.

Structural and logical diagram of the educational and professional program



IV. Form of certification of applicants for higher education

Certification is carried out in the form of public defense of the thesis.

The thesis should reflect the author's ability to perform research and / or innovation in the field of effective use of technologies, machines and means of mechanization of production, primary processing, storage and transportation of agricultural products, use, maintenance and repair of agricultural machinery.

The thesis should not contain academic plagiarism, fabrication, falsification.

The thesis must be published on the official website of the higher education institution or its subdivision, or in the repository of the higher education institution.

V. Matrix of conformity of program competencies (GC, PC) to the components of the educational and professional program

	MC 1. Physics of processes and mathematical methods of scientific research	MC 2. Management, marketing and intellectual property	MC 3. Economics of agricultural production and accounting	MC 4. Communications in the international environment and higher education pedagogy	MC 5. Occupational Health and the basics of jurisprudence	MC 6. Agricultural machinery	MC 7. Hydraulic and mechatronic systems	MC 8. Information technologies and precision farming systems	MC 9. Particular Substance Processing	MC 10. Off-road Vehicles` Properties	MC 11. Design of Agricultural Machinery	MC 12. Trends in Agricultural Engineering	MC 13. Transport, Handling and Manipulation Machinery	MC 14 Practice	MC 15. Reasoning of engineering and technological solutions	MC 16. Qualification (professional) attestation
GC 1	+	+										+			+	+
GC 2		+	+	+						+	+					
GC 3		+	+		+	+	+							+		
GC 4		+	+		+				+	+					+	
GC 5				+										+		
GC 6				+										+		+
GC 7				+				+								
PC 1		+	+					+						+	+	
PC 2		+		+						+	+				+	+
PC 3	+					+	+				+					+
PC 4				+					+		+			+		
PC 5	+		+							+				+		
PC 6	+					+	+				+	+				
PC 7	+								+	+	+	+				
PC 8			+		+										+	+
PC 9		+				+	+				+		+			
PC 10		+						+				+	+	+		
PC 11		+		+		+	+	+						+	+	
PC 12	+							+						+		
PC 13		+		+				+							+	
PC 14					+			+			+	+				
PC 15		+	+		+										+	+

VI. Matrix of Program Learning Outcomes (PLO) to the relevant components of the educational and professional program

	MC 1. Physics of processes and mathematical methods of scientific research	MC 2. Management, marketing and intellectual property	MC 3. Economics of agricultural production and accounting	MC 4. Communications in the international environment and higher education pedagogy	MC 5. Occupational Health and the basics of invironmence	MC 6. Agricultural machinery	MC 7. Hydraulic and mechatronic systems	MC 8. Information technologies and precision farming systems	MC 9. Particular Substance Processing	MC 10. Off-road Vehicles` Properties	MC 11. Design of Agricultural Machinery	MC 12. Trends in Agricultural Engineering	MC 13. Transport, Handling and Manipulation Machinery	MC 14. Practice	MC 15. Reasoning of engineering and technological solutions	MC 16. Qualification (professional) attestation
PLO 1	+			+										+	+	
PLO 2	+								+		+	+			+	
PLO 3				+	+											
PLO 4				+		+	+								+	
PLO 5		+	+												+	+
PLO 6			+											+	+	+
PLO 7	+										+					+
PLO 8	+		+												+	
PLO 9									+					+		
PLO 10			+							+			+	+		
PLO 11						+	+				+		+			
PLO 12		+			+						+				+	
PLO 13			+												+	
PLO 14						+	+				+					
PLO 15								+						+	+	
PLO 16									+	+	+					
PLO 17	+					+		+	+							
PLO 18	+		+											+		
PLO 19		+														
PLO 20					+							+		+		
PLO 21					+											+