



ASIIN Seal & European Labels

Accreditation Report

Bachelor's Degree Programmes

Agroengineering

Food Technology

Master's Degree Programmes

Agroengineering

Food Technology

PhD Programmes

Agroengineering

Food Technology

Provided by

S. Seifullin Kazakh Agrotechnical Research University

Table of Content

A About the Accreditation Process.....	3
B Characteristics of the Degree Programmes	5
C Expert Report for the ASIIN Seal	8
1. The Degree Programme: Concept, Content & Implementation	8
2. Exams: System, Concept and Organisation.....	27
3. Resources	30
4. Transparency and Documentation.....	35
5. Quality management: quality assessment and development	38
D Additional Criteria for Structured Doctoral Programmes	41
E Additional Documents	48
F Comment of the Higher Education Institution (07.11.2024)	49
G Summary: Expert recommendations (18.11.2024)	56
H Comment of the Technical Committees 08 – Agriculture, Forestry and Food Sciences (16.09.2024).....	58
I Decision of the Accreditation Commission (06.12.2024)	61
Appendix: Programme Learning Outcomes and Curricula	63

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels ap- plied for ¹	Previous ac- creditation (issuing agency, va- lidity)	Involved Technical Commit- tees (TC) ²
6B08701 - «Агроинженерия»	6B08701 - «Agroen- gineering»	ASIIN, EUR- ACE® Label	HAAP 20.12.2019 – 19.12.2024	08
7M08702 - «Агроинженерия»	7M08702 - «Agroen- gineering»	ASIIN, EUR- ACE® Label	HAAP 20.12.2019 – 19.12.2024	08
8D08701 - «Агроинженерия»	8D08701 - «Agroen- gineering»	ASIIN	HAAP 20.12.2019 – 19.12.2024	08
6B07201 - «Технология пищевых продуктов»	6B07201 - «Food technology»	ASIIN	HAAP 20.12.2019 – 19.12.2024	08
7M07201 - «Технология пищевых продуктов»	7M07201 - «Food technology»	ASIIN	HAAP 20.12.2019 – 19.12.2024	08
8D07201 - «Технология пищевых продуктов»	8D07201- «Food technology»	ASIIN	HAAP 20.05.2020 – 20.05.2025	08
Date of the contract: 30.01.2024 Submission of the final version of the self-assessment report: 10.04.2024 Date of the onsite visit: 02.10.2024 at: S. Seifullin Kazakh Agrotechnical Research University, Astana				

¹ ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes.

² TC: Technical Committee for the following subject areas: TC 08 - Agriculture, Forestry, Food Sciences and Landscape Architecture.

<p>Expert panel:</p> <p>Prof. Dr. John, Thomas, HS Neubrandenburg; FB Agrarwirtschaft;</p> <p>Prof. Dr. Kleinke, Matthias, Hochschule Rhein-Waal</p> <p>Prof. Dr. Braun, Peter, Hochschule Geisenheim</p> <p>Eugeniy Karabanov, Director of LLP "KSV Export"</p> <p>Said Nalibayev, Student at the South Kazakhstan State University</p>	
<p>Representatives of the ASIIN headquarter: Maria Mothes, Dr. Natalia Vega</p>	
<p>Responsible decision-making committee: Accreditation Commission for Degree Programmes</p>	
<p>Criteria used:</p> <p>European Standards and Guidelines as of May 15, 2015</p> <p>ASIIN General Criteria, as of December 10, 2015</p> <p>Subject-Specific Criteria of Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture as of March 27, 2015</p> <p>ASIIN Additional Criteria for Structured Doctoral Programmes as of March 15, 2021</p>	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Spe- cialization	c) Corre- sponding level of the EQF ³	d) Mode of Study	e) Dou- ble/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
6B08701 - «Agro- engineering»	Bachelor of Agriculture	Mechanization of agriculture	6	Full time		8 Semester	240ECTS	1 time per year / 2019
7M08702 - «Agro- engineering»	Master of Agri- cultural Sciences	Mechanization of agriculture	7	Full time		4 Semester	120 ECTS	1 time per year / 2019
8D08701 - «Agro- engineering»	Doctor of Philos- ophy (PhD)	Mechanization of agriculture	8	Full time		6 Semester	180 ECTS	1 time per year / 2019
6B07201 - «Food technology»	Bachelor of Engi- neering and Technology	Technology of food production	6	Full time		8 Semester	240ECTS	1 time per year / 2019
7M07201 - «Food technology»	Master of Engi- neering and Technology	Technology of food production	7	Full time		4 Semester	120 ECTS	1 time per year / 2019
8D07201 - «Food technology»	Doctor of Philos- ophy (PhD)	Technology of food production	8	Full time		6 Semester	180 ECTS	2 time per year / 2020

Saken Seifullin Kazakh Agro Technical Research University (KATRU), located in Astana, the capital of Kazakhstan, is the largest agricultural university in central and northern Kazakhstan. The university was founded in 1957 as the Akmola Agricultural Institute. A few days after its foundation, the USSR Ministry of Agriculture decided to establish the Faculties of Agronomy, Agricultural Mechanisation and Land Management. At present, the university

³ EQF = The European Qualifications Framework for lifelong learning

has nine faculties, 38 departments and one military department, as well as three research institutes. There are 134 study programmes: 48 bachelor's, 53 master's and 33 doctoral programmes. There are 10,851 students enrolled and about 820 professors and lecturers.

According to the results of the rating of world universities carried out by the agency QS World University Rankings® 2014/15, S. Seifullin KATRU entered the top of more than 701 best universities; it is a full member of the Great Charter of Universities, which creates a basis for the formation of the Single European Educational Space.

The Faculty of Technology began its history in October 1957 as the Faculty of Agricultural Mechanisation. At present it has 6 departments, of which the Department of Agricultural Engineering and Technology offers bachelor's, master's and PhD programmes in Agricultural Engineering and the Department of Food Technology and Processing Products offers bachelor's, master's and PhD Programmes in Food Technology.

For the **Bachelor's Degree Programme in Agroengineering**, the institution has presented the following profile in the self-assessment report:

“The main purpose of mastering the EP6B08701- "Agroengineering" is to train highly qualified, competitive, professionally educated personnel in the field of modern technologies, capable of using engineering methods to solve engineering (mechanical) problems, operation of machines, aggregates, equipment, design and assembly of machines and mechanisms, as well as in the system of integrated mechanization of agricultural production”.

For the **Master's Degree Programme in Agroengineering**, the institution has presented the following profile in the self-assessment report:

“The main goal of 7M08702 - Agroengineering is to prepare masters of science with relevant professional skills and competencies that contribute to solving theoretical and practical aspects of the impact of engineering systems (innovative and digital technology, agro-industrial complex technologies) to obtain potential agricultural productivity, and systemic problems facing agriculture”.

For the **PhD Programme in Agroengineering**, the institution has presented the following profile in the self-assessment report:

“The main goal of 8D08701 - Agroengineering is to train highly qualified, competitive PhD doctors with scientific research methods, with relevant professional skills and competencies in scientific and scientific-pedagogical activities in conditions of rapid updating and growth of information flows in the field of agriculture”.

For the **Bachelor's Degree Programme in Food Technology**, the institution has presented the following profile in the self-assessment report:

"The main purpose of mastering the EP 6B07201-"Food technology" is to provide high-quality training of innovation-oriented, competitive specialists with theoretical, practical and managerial skills in the field of food and processing technology in accordance with modern labor market requirements".

For the **Master's Degree Programme in Food Technology**, the institution has presented the following profile in the self-assessment report:

"The main goal of mastering the EP 7M07201 - "Food technology" is to train competitive specialists in the scientific and pedagogical field with theoretical, managerial skills and modern methods of conducting scientific research in the field of food and processing industries".

For the **PhD Programme in Food Technology**, the institution has presented the following profile in the self-assessment report:

"The main goal of mastering the EP 8D07201 - "Food technology" is the fundamental training of highly qualified scientific and pedagogical personnel with theoretical and practical skills in the development of food production technologies, capable of conducting scientific research independently, generating new ideas in research activities and introducing modern technologies in food enterprises industry".

C Expert Report for the ASIIN Seal⁴

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Self-Assessment Report (SAR)
- Learning Objectives-Module Matrices
- Module Handbooks
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The experts refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committee 8 (Agriculture, Forestry, Food Sciences and Landscape Architecture), the learning-module-matrices, and the module handbook for each degree programme as a basis for judging whether the intended learning outcomes of the degree programmes under review correspond with the competences as outlined by the SSC.

The Learning Outcomes for each programme are described in the SAR (see below Appendix) as well as in the Diploma Supplement and for each module in the module handbooks.

According to the university website, graduates of the Bachelor's Degree Programme Agroengineering are expected to acquire the following key competences:

- “be able to carry out maintenance and repair of machinery and equipment using the latest diagnostic methods and tools, technical and technological modernization of agricultural production;
- be able to control the production and processing of agricultural products and assess the conditions and consequences of organizational and managerial decisions;

⁴ This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

- be able to organize work in the complex mechanization of crop and livestock enterprises and the use of new energy and resource-saving technologies;
- assess the economic and social conditions of entrepreneurial activity and develop business plans for the creation and development of new organizations in the areas of activity;
- be able to design an organizational structure, to carry out the distribution of powers and responsibilities based on their delegation;
- participate in the development of the human resource management strategy of organizations, plan and implement activities aimed at its implementation and form their own judgments on the development of modern technologies;
- be able to use the laws and methods of mathematics, natural sciences, humanities and economics in solving standard and non-standard professional tasks and possess various methods of conducting scientific research and developing academic writing in the field of agricultural mechanization;
- be able to analyze and calculate in the development of design and estimate documentation for the construction of agrotechnical service enterprises, in scientific research and design developments of working bodies and machine components, drawing up technological maps for the production, storage and processing of agricultural products.”

They are qualified to work as engineers, mechanics, managers, designers, leading specialists in various agricultural formations (e.g. firms, enterprises, farms), design and engineering organizations, machine-technological stations (MTS), social and entrepreneurial complexes (SEC), processing and supplying enterprises and factories, organizations of technical service of agricultural machinery, fleets, district, regional and republic agricultural management bodies (civil service).

The following competencies of graduates of the Master’s Degree Programme in Agroengineering are mentioned on the university's website:

- “To consider rationalization proposals for improving the technologies of storage and processing of agricultural products and to give conclusions on the expediency of their use.
- The ability to carry out engineering calculations for the design of systems and facilities and the willingness to apply engineering knowledge about modern research methods.
- The ability to project activities based on a systematic approach.
- The ability to build and use models to describe and predict various phenomena, to carry out their qualitative and quantitative analysis.”

Areas of employment for graduates of the Masters in Agricultural Engineering include:

- “technical and technological modernization of agricultural production;
- efficient use and maintenance of agricultural machinery, machinery and equipment, means of electrification and automation of technological processes in the production, storage and processing of crop and livestock products;
- scientific research, scientific production, design organizations, nature protection bodies, practical enterprises and design organizations and machine testing stations;
- management activities in agricultural organizations of various forms”.

Graduates of the PhD Programme in Agricultural Engineering are qualified to carry out managerial activities in agricultural organisations, in machine technology stations (MTS), in social and entrepreneurial complexes (SEC), in processing and energy supply enterprises, factories, plants, in design and engineering organisations, in local and republican agricultural management bodies, as well as in the field of scientific research in universities and research institutes.

According to the University's website, graduates of the Bachelor's Degree Programme in Food Technology will be qualified to hold professional positions in the food industry (dairy, meat, oil and fat, macaroni, confectionery, wine-making and brewing industry, etc.), R&D organisations, enterprises of various forms and types of ownership.

The Master's Degree Programme in Food Technology prepares graduates to work in the following areas:

- “management, organization and control of technological processes in the food and processing industry;
- improvement of technological operations and participation in the development of resource-saving technological processes in the development of new types of products; analysis of technical equipment and production activities of enterprises, taking into account the requirements of ecology, labour protection;
- management of labour collectives, adoption of managerial decisions; analysis of technical and economic indicators of enterprises and marketing activities;
- development and design of technological schemes for food and processing industries and reconstruction of existing enterprises;
- study and analysis of scientific and technical information, domestic and foreign experience in the food industry; experimental studies to improve the quality of raw materials, finished products of the relevant branches of food products;
- activities in the field of education”.

Graduates of the PhD Programme in Food Technology will be able to continue their scientific activities or to teach in higher vocational schools with a technological profile. They will also be qualified for organising and leading research teams in research institutes, research and production centres, higher education institutions, as well as for management activities in structural divisions of ministries and departments, financial and professional and comprehensive analysis of problems in the food industry.

As stated by the university in the SAR, all the study programmes under review were developed taking into account the opinions and suggestions of various stakeholders (teachers, employers, students). In addition, the profile and specialisation of the training, the professional and additional competences of the graduates, the list of optional subjects, the subjects of the university component and the individual subjects relevant to production were reviewed at a departmental meeting. An internal review was carried out in the Faculty's Academic Council with the participation of the Employers' Association and student representatives and approved by the University's Academic Council. Representatives of the Employers' Association also presented reviews of the study programmes.

During the discussions, the experts ask about the contact with industry and whether there is a link with employer companies for a partial assessment of the quality of graduate training. The programme coordinators explain that KATRU has a Centre for Professional Practice and Employment which monitors the employment of graduates at regular intervals of 3 months after graduation, 6 months and 1 year. These studies can be used to develop directions for further development of cooperation with employers and employment prospects for graduates. Studies on the employment of graduates at the state level are monitored by "NCE Atameken" in the field of agricultural engineering. The aim of this study is to determine the specialisations in demand and the quality of education of graduates. It also looks at the employment prospects of graduates and the percentage of graduates who find work in their field of specialisation.

According to the programme coordinators, who presented some statistics during the meeting, in the field of food technology, out of 189 graduates, 60.1% find a job in the field. As regards Agro Engineering, 49.3% of the 53 graduates go on to work.

Regarding the bachelor's graduates of both programmes, the experts note that the number of MSc students is low compared to the number of bachelor's students (apart from the Corona gap), and consequently the number of PhD students is even lower. University officials explain that people choose different directions, depending on their individual situation. However, they plan to improve the attractiveness of the master's and PhD programmes in cooperation with stakeholders from other universities. For example, double

degrees would make the programme more attractive. The programme coordinators confirm that some students do not continue with the master's programme because of military service or other individual commitments. They also point out that the MSc in Agricultural Engineering is more focused on preparation for teaching. This means that most of the students who graduate with a master's degree are hired by the faculty. Very few go to Kazakh industry. Some of them, after some time of teaching, continue with doctoral studies and even after that, some of them might eventually be working in industry.

After reviewing the learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the learning outcomes of the respective programmes are not identical in all documents provided (e.g. programme descriptions, documents published on the website, Diploma Supplement). The learning outcomes need to be reviewed and standardised in all documents and made available to all stakeholders, e.g. on the website.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report (SAR)
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Discussion during the audit

Preliminary assessment and analysis of the peers:

According to the SAR, the names of the programmes under review are consistent with the National Qualifications Framework of the Republic of Kazakhstan. It classifies them by the level and specialization of skills in accordance with the type of work performed and in accordance with the International Standard Classification of Classes 2008 (IMSK-08) - International Standard Classification of Occupations 2008 (ISCO-08).

The experts consider that the names of the programmes correspond to the intended programme and learning outcomes, as well as to the main language of the course. The experts agree that the teaching and learning content and the competence profile are consistent with the proposed title of the programme.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Learning Objectives-Module Matrices
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>

Preliminary assessment and analysis of the experts:

Content and structure of the programmes

KATRU states in its SAR that the content of the degree programmes under review was designed in accordance with the State Mandatory standard of Higher Education approved by Order of the Minister of Education and Science of the Republic of Kazakhstan No. 604 on October 31, 2018 (Amended by Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2.).

The **Bachelor's Degree Programme in Agricultural Engineering (6B08701)** is a four-year programme, upon completion of which graduates are awarded the degree of "Bachelor of Agriculture". Based on basic scientific and technical modules, specialised knowledge is introduced and deepened in the higher semesters. The focus of the programme is on engineering and machine design.

The **Bachelor of Food Technology (6B07201)** also lasts 4 semesters and leads to the degree of "Bachelor of Engineering and Technology". To obtain these degrees, students must fulfil all the requirements and complete 240 ECTS. The curriculum of the Bachelor of Food Technology covers all the essential components of food technology. Physical, chemical, microbiological and engineering principles as well as quality control and assurance methods are included in the various technological modules (e.g. meat technology, oil production, bakery production, etc.), unless they are designed as separate modules. Various practical courses are also organised.

As part of its Self-Assessment Report, the university presents the structure of both Bachelor programmes. They feature three cycles in accordance with the State Compulsory Educational Standards:

- 1- Cycle of general education disciplines: It comprises 56 ECTS (23.3%) and aim at developing a general intellectual level. This cycle includes modules of the compulsory component such as Modern history of Kazakhstan, Philosophy, Foreign and Kazakh (Russian) language, Information and Communication Technologies (in English); of the university component and/or elective component in the specific field.

- 2- Cycle of basic disciplines: It covers 120 ECTS (50%) and includes courses of the university component and/or the elective component. For instance, the university component of both bachelors include the basic courses Mathematics, Chemistry and Physics as well as basics in the specific area (e.g. for Ba Agroengineering: Fundamentals of agronomy, Agricultural machines, Materials in engineering design; for Ba Food Technology: Microbiology, Chemistry and biochemistry of food; Standardization, metrology and certification of food branch).
- 3- Cycle of profile or major disciplines: It comprises, on the one side, 56 ECTS (23.3%) including modules of the university component and/or the elective component. For the Bachelor Degree Programme in Agroengineering, modules are included such as Tractors and cars, Agrotechnological machines, Agricultural machines, Fuel, lubricants and technical fluids. The Bachelor of Food technology comprises, for example, Management; Economics and entrepreneurship; Industrial practice and Pregraduation practice, Technology of milk and dairy products / Technology of bread and pasta. On the other side, a final certification of 8 ECTS (3.4%) including Design and defence of the thesis (project)

The **Bachelor's Degree Programme in Agroengineering** includes different types of practice courses. The second semester includes the "Educational practice" and from the 4th until 7th semester the professional practices at sites of production. The internships are an integral part of bachelor's degree preparation. They are aimed at consolidating theoretical knowledge gained during the studies, acquiring practical skills and competencies, as well as mastering best practices.

There is a compulsory scientific internship of master's and doctoral students. For master's students, the internship is carried out during not less than 14 calendar days in research institutes or organizations in the areas of research. The doctoral students' internship requires not less than 1 month and is supervised by a foreign scientific adviser.

According to the SAR, the students of the 1st, 2nd and 4th courses carry out production practice in the experimental production workshops located in KATRU. The internship schedule is set at a convenient time for the department. This helps to improve the quality of the students' work experience and to make efficient use of their time. In addition, 2-3-4 year students are required to complete internships in large manufacturing companies. This helps to further absorb the experience of large manufacturing enterprises and consolidate the production experience of students.

The **Bachelor's Degree Programme in Food Technology** also includes the "Educational practice" and in the 4th and 6-8th semester the professional practices at sites of production which take place at the university as well as the sites of production.

The **Master's Degree Programmes in Agricultural and Food Engineering** comprise four semesters and a total of 120 ECTS. The degrees awarded are "Master of Agricultural Sciences" and "Master of Engineering and Technology". They consist of theoretical training and practical training in the form of scientific or professional internships and research work, including the completion of a master's thesis or experimental research work. The modules include the university component and the optional component, which are determined taking into account the expectations of employers as well as the needs and interests of the students. The master's programmes under review consist of a cycle of basic disciplines of 35 ECTS (29.2%), a cycle of profile disciplines of 53 ECTS (44.2%), a graduate research work of 24 ECTS (20%) and the "final certification" ("design and defence of master's dissertations") of 8 ECTS (6.6%).

In addition, a pedagogical practice and a research practice are included. The pedagogical practice aims to develop practical skills in teaching and learning methods. The master's research practice is designed to familiarise students with the latest theoretical, methodological and technological achievements of domestic and foreign science, modern methods of scientific research, processing and interpretation of experimental data.

The **PhD programmes in Agroengineering and Food technology** consist of six semesters and also include modules of the university component and of the elective component. As stated in the SAR, the modules are interdisciplinary and multidisciplinary providing training at the junction of a number of fields of knowledge. These doctoral programmes include pedagogical and research practice and consist of three cycles of disciplines: a cycle of basic disciplines of 25 ECTS (13.9%) and a cycle of profile disciplines of 20 ECTS (11.1%), research work of 123 ECTS (68.4%) and final certification of 12 ECTS (6.6%) as well as scientific publications, writing and defending a doctoral dissertation.

The experts discuss with the course coordinators whether and in which courses important subjects will be covered in the curricula of the undergraduate courses. On the one hand, important subjects such as sensor technology, sensor communication protocols or GPS do not appear in the module descriptions of the Agroengineering programme. On the other, it is obvious to the experts that these subjects are nonetheless part of the teaching under good conditions and students seem well-trained in these subjects. The experts consider this a great strength of the study programme which should also be reflected in the curriculum.

The programme coordinators explain that students are first well trained in basic subjects such as mathematics and physics. Then, from the second year onwards, specific courses are offered, such as technical mechanics, machine optimisation and machine design technology. On the other hand, the experts wonder whether some fundamentals of food technology are taught (e.g. food process engineering (mechanical, thermal), heat transfer, texture and rheology of food, organoleptic testing/evaluation of food, dietetics). In this context, those responsible for the Bachelor's Degree Programme in Food Technology make it clear that, from the second year onwards, there are basic and professional courses which include basic topics such as the module "Theoretical foundations of food technologies", the six courses on "Food technology", the module "Processes and devices of food 1 and 2". Regarding Food Technology, the experts are satisfied with that. The modules are broadly designed for later use in practice, and it is not possible to cover all areas of food production, such as brewing, distilling, fish processing, etc.

In addition, the experts note that the topics of sustainability, climate and environmental protection seem to play an important role on the websites of the study programmes but are not clearly reflected in the curricula of the study programmes under review. The programme representatives explain that a questionnaire is sent to employers twice a year and that they analyse and make proposals for development of the curriculum on the basis of this. They are working on further updating the curricula and harmonising them with the needs of industry in Kazakhstan.

The students interviewed are very satisfied with the programmes under review and believe that the programmes prepare them for good career opportunities. Bachelors particularly appreciate a strong orientation in terms of practical skills and application and emphasise the internships, where they have the opportunity to apply the theoretical knowledge they have acquired. They are aware that the first year includes compulsory courses on history, culture and languages (Kazakh and Russian). The majority of them find these courses useful and interesting. Nevertheless, some students are of the opinion that the content of the bachelor's and master's programmes is very traditional and that it would be good to modernise the subjects of the programme. They also feel that the university provides good support for the development of their English language skills, although some would like more courses taught only in English. Regarding English language courses, the programme coordinators explain that there are free additional courses offered by the university and held on Saturdays as well as English clubs for students to actively practice language skills. After the first year, English exams are held. Upon passing, students are allowed to take subject courses in English. However, in the discussion, students remark that the level is still not sufficient. They explain that most students come from villages and suburban areas. Therefore, the level of English language competencies is very low.

Furthermore, industry representatives note that the theoretical and basic knowledge of the interns in their companies is sufficient, and students learn quickly. However, practical skills are sometimes lacking. During the internship, they monitor the students and prepare a report on their activities and skills. In this way they can see their improvement. The topics for the final projects can also be recommended by the company and carried out together with a supervisor from the industry. Some research institutes offer the possibility to work in their laboratories and during the thesis students are given tasks related to the project topic. Some of the students get a job after their studies in the companies where they do the internship. They want to employ graduates from this university.

Concerning the technological standard, some bachelor graduates are not able to work with modern equipment, as some industry representatives note. In comparison, they point out that master's graduates are better prepared and qualified. Therefore, in view of the rapid development of technology, they consider it desirable that the content of the bachelor's degree should be more up to date.

In summary, the auditors are satisfied with the curricula of all the programmes. They see that the programmes are well structured to enable students to effectively achieve the learning outcomes set for the programmes as a whole. Learning outcomes are also defined for each module. The electives offered in both programmes provide opportunities for individual focus and study. They also appreciate that the curriculum is regularly reviewed and that changes are documented.

The experts are of the opinion that the curriculum of the **Bachelor's Degree Programme in Agricultural Engineering** meets the necessary requirements. The proportion of practical teaching components such as internships and exercises is planned and impressively implemented. The need to include a number of centrally prescribed modules in the curriculum is not taken into account in this assessment. However, after reviewing the curriculum and taking into account the feedback from students and industry during the visit, the experts agree that the curriculum of the **Bachelor's Degree Programmes in Agricultural Engineering and Food Technology** should be updated in terms of content and aligned with the state of the art in the respective field. For example, a course on Food Safety could be added to the Bachelor's programme in Food Technology. Furthermore, the very good training facilities and the contents in the curriculum should be better reflected in the module descriptions and other related documents. The curriculum overview for each programme needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload. The learning outcomes for each module should also be reformulated in a concrete and clear way.

Periodic Review of the Curriculum

According to the SAR, each department design a plan for development which is monitored once a year by the department and the faculty. A report on the implementation, effectiveness and efficiency of this plan is prepared by the head of the study programme and reviewed by the Academic Council of the University. For the successful implementation of the study programmes under review, the department has a plan for the development of educational programmes from 2019 to 2025, approved by the Dean of the Faculty of Technology.

During the visit, the programme representatives also explain that they analyse and review the curriculum on a regular basis, based on the feedback they receive from employers. Industry representatives affirm that they feel involved in curriculum development through providing reviews to universities and participating in online meetings to discuss curriculum development.

Student mobility

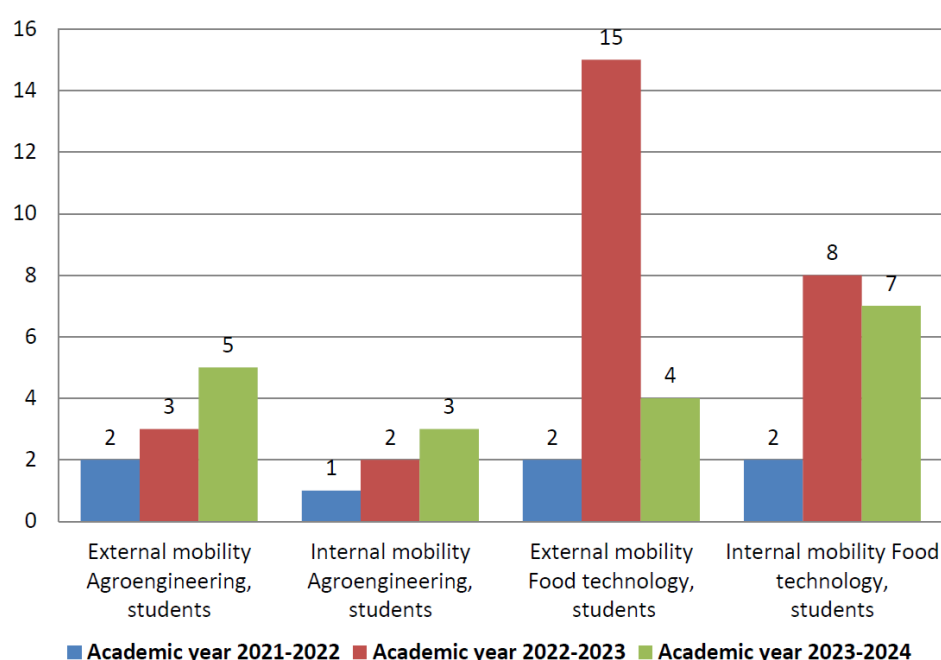
As stated in the SAR, academic mobility is regulated by the following university regulations ROEAMSID 05.5005-2020 "Regulations on the Organisation of External Academic Mobility of Students at S. Seifullin Kazakh Agrotechnical Research University" and ROIAMSID 02.2042-2020 "Regulations on the Organisation of Internal Academic Mobility of Students at S. Seifullin Kazakh Agrotechnical Research University". According to these, bachelor and master students have the opportunity to study certain disciplines in other educational organisations in the Republic of Kazakhstan with which there is a bilateral agreement between the universities. In addition, all students at all three levels of study can realise individual mobility opportunities.

The university management emphasises during the visit that they have a number of agreements with international universities, in particular in China, Russia, France, Germany and the United States. They are planning to increase the mobility and with the new development strategy 2025-2029, the students are supposed to go abroad at least once. Its aim is employability within the country, but students' international experience is also very important for improving English language skills and for graduates' careers and competitiveness in the global market. University representatives also point out that there are special programmes and grants from the Ministry of Education for international students, who are selected by competition. The best Bachelor students have the opportunity to go abroad.

In addition, KATRU has a cooperation agreement with Northwestern University of Agriculture and Forestry in China. According to the Memorandum of Cooperation No. 477 dated 25 March 2022, the purpose of this cooperation is in the field of research and educational

activities as well as exchange of teachers and students, e.g. academic exchange of teachers, researchers, Ph.D. students as well as undergraduate students for visiting courses, long and short-term internships etc.

As part of academic mobility, students of the bachelor's programmes under review leave annually for semester training and practical training. KATRU also accepts students and teachers for mutual exchange training. In its SAR, the university explains that from 2019 to 2022, it has adopted a trimester structure. This has made academic mobility difficult due to the mismatch of study periods with other universities. However, the university has returned to a semester-based structure from the 2022-2023 academic year. They present following data regarding academic mobility:



Regarding the recognition of studies at other institutions, if a student studies at the host university a discipline which is not included in the WTP (working training programmes) of NC JSC "S. Seifullin KATRU", according to the SAR, the discipline is counted as a completed course, entered into a transcript by the host university, then in the system "Platonus" on the basis of an extract from the minutes of the departmental meeting (transfer of completed disciplines). If the names are different but the content of the discipline is similar, a transfer of credits is made.

During the audit, students confirm the wide range of offers for academic mobility. They feel supported by the university, which provides information on the mobility programmes on offer. They mention the agreements with LOGOS and DEULA-Nienburg, which provide

opportunities for students to spend a few months (4.5 months) on an internship in Germany. The aim of this programme is to improve students' theoretical knowledge and to provide practical work experience. In addition, through the development of entrepreneurial and management skills, the establishment of international business relations in the agricultural sector is also essential. As part of the internship, students are provided with accommodation and a grant of 300 euros. For doctoral students, there is a government programme to go abroad. However, some students would like to see more exchange programmes that offer a semester abroad, including scholarships or financial support. Moreover, the experts observed that most students, even PhD students, are not able to speak English. Despite the availability of English courses and interest, they still need more confidence and practice in speaking English.

The experts conclude that the internationalisation strategy should be strengthened in all programmes under review by improving students' English language skills, providing more support for international student mobility and increasing exchanges with foreign institutions and teachers. The conditions and opportunities for going abroad, for example for a semester, should be improved.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Admission rules for studies in NCJSC "S. Seifullin Kazakh Agrotechnical Research University
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Ministry's regulations: <https://adilet.zan.kz/eng/docs/V1800017650>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The admission at KATRU is regulated by the "Admission rules for studies in NCJSC" S. Seifullin Kazakh Agrotechnical Research University" for educational programmes of higher and postgraduate education. An admission committee is responsible for organizing the selection of applicants. It receives applications and enrol students who have passed the competition. According to this, admission of persons entering KATRU is carried out through the placement of an educational grant for higher education at the expense of the republican

budget or local budget, as well as payment for tuition at the expense of the student's own funds or other sources.

According to the Order of the Minister of Education and Science of the Republic of Kazakhstan of October 31, 2018 № 600, applicants for **bachelor's degree programmes** have to take the "Unified National Test" (UNT) as a nationwide university entrance examination. Participants receive a certificate including a test score with which they apply at their desired university. Based on the received applicants' UNT results, bachelor candidates may participate in the selection process for the granting of a university scholarship provided from the state budget and (or) enrol in paid education based on the result of the Unified National Testing (UNT). Persons who have not achieved the threshold score established are enrolled in KATRU in full-time education on a fee-paying basis. Upon completion of the first academic period of study at KATRU, these persons take the UNT within the established time frame in accordance with the rules from the Ministry of Education. In addition, admission of foreign citizens to study at KATRU on a fee-paying basis is carried out based on the results of an interview conducted by the University's Admissions Committee.

In accordance with the university's admission regulations, applicants for **master's degree programmes** take a CT test which is carried out by the National Testing Center of the Ministry of Health and Military Education. It includes a foreign language test (optionally English, German, and French), a test on the degree programme profile and optionally a test to determine suitability for training in Kazakh or Russian. Persons who have international certificates confirming proficiency in a foreign language must provide this by inscription. CT is carried out by the National Testing Center of the Ministry of Health and Military Education of the Republic of Kazakhstan at CT testing points determined by the Ministry of Health and Military Education of the Republic of Kazakhstan. Candidates who have scored the highest points in comprehensive testing and/or the sum of entrance exams, taking into account the threshold score, are admitted to training under an educational order on a competitive basis (for scientific and pedagogical master's degree – not less than 75 points; for a specialised master's degree – at least 30 points; having a master's degree; work experience in the specialty for at least 9 months). Persons who have scored the highest points in the entrance exam – at least 75 points – are admitted to study under the state educational order on a competitive basis.

For admission to **doctoral studies**, applicants to doctoral studies are required to provide international certificates confirming proficiency in English in accordance with the Common European Framework of Reference for Foreign Languages (standards). The authenticity of the presented certificates is verified by the KATRU Admissions Committee. There is an entrance examination for doctoral studies which is conducted in computer format. The final assessment is a set of points obtained by summing up the results of the essay assessment,

answers to examination questions on the profile of the educational programme group and an interview. Applicants who have completed a specialised master's degree with a study period of 1 or 1.5 years, need to undergo training in the pedagogical cycle and master the missing credits on a paid basis before starting doctoral studies, having received a certificate of completion of the pedagogical cycle of the established form.

During the discussion on site, the university representatives explain that the majority of students receive a scholarship for their studies. Even those who pay for their own studies receive funding from other sources. The experts also ask about the rules for application and admission of disabled people. The university representatives explain that people with special needs and disabilities submit documents confirming that they are entitled to preferential treatment and a quota. The university then pays attention to the needs of these students (e.g. blind students) and university funds are allocated to support them. For example, special tactile desks are available on campus. The University emphasises in its SAR that there is sufficient demand among applicants for these programmes and a certain quota is formed to form groups for training at three levels.

The Admission Rules for all programmes under review are published on the University's website and provide potential students with detailed information on the requirements and steps necessary to apply for admission to the programmes. As they are based on official regulations, the assessors consider them to be binding and transparent. They confirm that the entry requirements support students in achieving the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- University website: <https://kazatu.edu.kz/en/facultet/tehnikeskij-fakultet>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

KATRU uses a credit system for assessing the workload of students which is applied to all mandatory components of the degree course, including internships. Credits are awarded for every module based on the respective workload. As stated in the SAR, the workload includes contact hours and time for independent work and is calculated taking into account transfers to the ECTS scale. The complexity of each discipline and each type of educational

work is indicated in the syllabuses and module descriptions. The annual workload of students is reflected in the individual curricula. The transcripts of records also contain complete information about the disciplines they have completed and the number of academic ECTS they have mastered.

According to the “Rules of the organization of the educational process on credit technology of education in organizations of higher and (or) postgraduate education” (Order No. 152 of the Minister of Education and Science of the Republic of Kazakhstan dated April 20, 2011), one academic credit is equal to 30 academic hours for all its types. One academic hour for all types of academic work is equal to 50 minutes and for training sessions, practices and final certification is at least 40 minutes. The students’ workload is calculated by determining contact and independent work which is divided into two parts: into independent work, which is performed under the guidance of a teacher, and into that part, which is performed completely independently. For instance, a module of 5 credits comprises 45 hours classroom (15 hours of lectures, 15 hours of practical classes and 15 hours of laboratory and practical classes), 20 hours of independent work of a student with a teacher (contact time) and 85 hours of independent work of a student. Therefore, one Kazakh academic credit point (30 academic hours) corresponds to 1 ECTS credit (25-30 academic hours).

The bachelor’s degree has 240 ECTS, the Master 120 ECTS and the PhD 80 ECTS. In accordance with the State Compulsory Educational Standards, there is a ratio of the volume of discipline cycles maintained in the curricula, which consists of three cycles of disciplines: a cycle of general education disciplines of 56 ECTS (23.3%) aimed at developing a general intellectual level, a cycle of basic disciplines of 120 ECTS (50%) and a cycle of profile disciplines of 56 ECTS (23.3%) and final certification of 8 ECTS (3.4%).

During the discussions on-site, the experts inquire about the calculation of the workload and the corresponding hours. The university clarifies that, according to governmental rules, there should not be more than six hours of classes per day. The university also explains that 30% of the workload is based on contact hours, such as lectures, practical courses, etc. 70% is based on self-study time at home, in the library, or through counselling time with the staff. The auditors conclude that the workload of all programmes under review needs to be verified. To do so, a monitoring method of the students’ workload should be implemented. In addition, and according to the experts’ discussion, the structured gathering of student feedback on the course workload should be ensured, e.g., through an integration of appropriate questions in the summative course evaluation surveys.

Criterion 1.6 Didactic and Teaching Methodology
--

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- University website: <https://kazatu.edu.kz/en/facultet/tehnikeskij-fakultet>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The SAR indicates that KATRU utilises a combination of conventional and innovative, interactive pedagogical approaches, encompassing techniques such as the case method, game methodology, design thinking, simulation training, role-playing, business simulations, role-playing games, situational exercises, document analysis and the incorporation of multimedia, presentations and videos. Additionally, the university's dedicated video recording studio facilitates the production of video lectures by faculty members.

The degree programmes under review encompass a significant proportion of practical courses and open experimental production workshops. In these experimental production workshops, which align with the requirements of the dual training system, students can integrate theoretical knowledge with practical experience in production, both in production conditions and with the assistance of the university's educational resources.

During the discussion, the teachers emphasise the extensive use of online teaching and video resources, which students can employ to enhance their learning and exam preparation. Furthermore, the programmes under review incorporate diverse opportunities for practical and laboratory work, which give students the opportunity to engage in collaborative learning and develop practical competencies. Furthermore, the programme coordinators highlight the science student competition and Olympiads, which provide an opportunity for students to present their projects. For instance, in the Republican subject Olympiad among universities of the Republic of Kazakhstan in 2021, 2022, and 2023 (Kazakh National Agrarian Research University and Almaty Technological University), students from the Bachelor's Degree Programme in Agroengineering and Food Technology achieved the highest rankings.

The experts commend the diversity of teaching methods and the extensive range of practical courses in the study programmes under review. They are of the opinion that these ensure the achievement of the course objectives and the overall intended learning outcomes.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:

In its statement, the university undertakes to carry out a comprehensive review and update of all documents, including descriptions of learning outcomes for relevant programmes, taking into account professional and social competences, website information and Diploma Supplements, in order to identify and address any discrepancies. It also mentions the updating of materials in the AIS Platonus database and on the university website. In order to prevent similar inconsistencies in the future, it is planned to create a central database with up-to-date information on the educational programme and learning outcomes, in line with the register of educational programmes of the Ministry of Science and Higher Education, and to implement regular checks and reviews of the documentation.

The experts appreciate the measures planned by the university to address these inconsistencies. However, as the university has not provided evidence that the documents and platforms have already been updated, the expert group maintains its previous assessment. They understand that the process of reviewing and updating has only just begun and is not yet complete. They are of the opinion that the learning outcomes need to be reviewed and standardised in all documents (e.g. Diploma Supplement, website, etc.) and that they need to be anchored in a transparent way, published and made available to all stakeholders. The information should be identical for all stakeholders on all relevant platforms.

Regarding the auditors' conclusions that the syllabus of each programme under review needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload, the university states that the process of revising the curriculum for undergraduate programs in Agricultural Engineering and Food Technology has been initiated. As part of this revision, feedback from students and industry representatives will be considered to ensure the relevance and practical orientation of the courses. In particular, the programmes will update the module descriptions, rewrite the learning outcomes for each module to make them more specific and clearer, and update other documents to better reflect the learning opportunities and content of the curricula. In addition, a practice of regular review and updating of the curriculum and its components will be ensured. The university also states that the module handbooks for all programmes under review have been updated, translated into English, and posted on the university website for access by all interested parties (see below **Criterion 4**).

The experts believe that this is the right approach and recognise that the review process will take time. For this reason, they maintain their assessment in this respect and hope that the above-mentioned measures can be implemented in a proper manner and within a short period of time.

As the auditors recommend that the curricula of the Agricultural and Food Science BSc programmes be updated and brought into line with the current state of the art, KATRU is planning to include a course on food safety within the Food Science BSc programme, which will be aligned with current industry standards and the needs of the learners. In addition, the university provides a list of updates to the content of the undergraduate curriculum. The experts appreciate these explanations. They think that the updates are in the right direction.

In its statement, KATRU also outlines various measures that will be taken to strengthen the internationalisation strategy and improve the English language skills of students and lecturers in Agroengineering and Food Technology programmes. For example, an English Speaking Club (practical classes) for students and university staff, held every Saturday starting from 28 September 2024. In addition, the Foreign Languages Department will monitor students' language proficiency and plan to open English language groups based on the results. Moreover, funds from the republican budget of the Ministry of Science and Higher Education have been allocated in 2023 to financially support external academic mobility. Furthermore, the University provides a list of planned English language activities for the academic year 2024-2025 for students of the Technical Faculty.

The experts appreciate these efforts and consider the financial support for mobility and the opportunities to improve English language skills to be very important. However, they are of the opinion that the opportunities and support for the international mobility of students could be further promoted through co-operation with international institutions and universities and through greater promotion of scholarships and exchange mobility programmes. In addition, an appropriate framework for mobility should be established in the future to ensure academic mobility, e.g. for one semester without extension of the study period. The international mobility of teaching staff and more exchanges with foreign institutions and teachers should also be further developed.

Criterion not fulfilled.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation
--

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Rules for monitoring during current and interim certification of students
- Rules for final certification of students
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Exams in the degree study programmes under review follow the examination rules as stated in the examination university's rules. According to this, various examination methods can be applied. To assess the achievement of the learning outcomes of one module, the main procedure is a combination of "current control", midterm ("intermediate certification") and "final certification (final assessment)."

The "current control" considers the systematic testing of the students' knowledge in accordance with the syllabus. Various types of current control of students are used: oral and written exam, combined exam, discussions, trainings, round tables, tests, essays, course project (work), etc. This method considers activity in the classroom and independent work (including homework). 60% is allocated to the current control (CC), the final control (FC) is 40% of the total amount of the final assessment. Students who have not received the current control assessment within the established deadlines for objective reasons (illness, family circumstances, natural disasters, training on academic or credit mobility, events of the national and international level), confirmed by documents, have the right to extend the deadline for submitting current control assignments according to an individual schedule.

The intermediate or midterm assessment refers to the mandatory assessment of students' academic achievements upon completion of a major section (module) of one academic discipline. Each academic period ends with a period of midterm assessment of students who take final assessments in all disciplines.

The final assessment or certification consists of writing and defending a thesis (project). In order to carry out the final certification of the students, a certification committee for educational programmes or training areas is established. According to the regulations for the

final examination, the thesis is defined as follows: “a graduation work that is a generalization of the results of the student's independent study of a relevant problem corresponding to the profile of the educational program”. “Diploma project is a student's graduation work, which is an independent solution to applied problems corresponding to the profile of the educational program, completed using project approaches and (or) in the form of preparing business projects, models, as well as creative projects and other projects”.

The defence of the thesis (project), master's thesis (project) is held at a public meeting of the certification committee with the participation of the chairman and at least 2/3 of its members. The duration of the defence should not exceed 30 minutes. To defend the thesis (project), master's dissertation (project), the student presents a report to the Certification Committee for a maximum of 15 minutes. It is possible to do the defence online.

The requirements for a master's thesis are as follows:

- 1) “corresponds to the profile of the master's degree program, according to which the master's thesis is being performed and defended;
- 2) it is relevant and contains scientific novelty and practical significance;
- 3) it is based on modern theoretical, methodological and technological achievements of science and practice;
- 4) performed using modern scientific research methods;
- 5) contains research (methodological, practical) sections on the main protected provisions;
- 6) based on international best practices in the relevant field of knowledge”.

According to the final examination regulations, a student may take two comprehensive examinations (written work, computer tests, etc.) instead of a thesis (project) only in the case of long-term in-patient treatment for health reasons, bringing up a child under 2 years of age or pregnancy. In this case, the student must write a request to the Rector of the University and submit the relevant document.

Concerning organisation and defence of doctoral dissertation see below **Criterion D 4 Supervision and Assessment**.

The following table, provided by the University, shows the letter grade system (BRBS) used to assess the educational performance of students including equivalences to the traditional assessment scale:

Rating according to the letter system	The digital equivalent	Points (% content)	Assessment according to the traditional system
A	4,0	95-100	excellent
A-	3,67	90-94	
B+	3,33	85-89	good
B	3,0	80-84	
B-	2,67	75-79	
C+	2,33	70-74	
C	2,0	65-69	satisfactory
C-	1,67	60-64	
D+	1,33	55-59	
D	1,0	50-54	
FX	0,5	25-49	unsatisfactory
F	0	0-24	

As stated in the assessment university's rules, if the student receives the grade "FX" - "unsatisfactory", he/she may repeat the final examination (exam) in accordance with the academic calendar of the University, without repeating the module more than once. In the case of an "unsatisfactory" grade, which is equivalent to an "F" grade, the student must re-enrol in that academic discipline (module), attend all types of classes, complete all types of academic work according to the programme and repeat the final examination. In case of receiving an "unsatisfactory" grade, corresponding to the grade "F", final year students remain for the repeat course of study.

Students have the right to appeal no later than the next working day after the examination if they disagree with the result of the final evaluation.

If a student does not attend the examination session for objective reasons (illness, family circumstances, natural disasters, academic or credit mobility, national and international events), confirmed by documents, they have the right to extend the examination session according to an individual schedule.

During the audit, students report that they are satisfied with the examination forms and their organisation, and with the support and feedback provided by lecturers.

The auditors examine samples of examinations, final projects, thesis and PhD dissertations submitted by the programmes under review. According to them, the documents show that the level of the students' academic performance and the content of the modules are sufficient for the programme concerned. They also consider that the number and distribution of examinations ensure an appropriate workload and sufficient time for preparation.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:

Criterion fulfilled.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Programme Faculty Information
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Discussion during the audit

Preliminary assessment and analysis of the experts:

KATRU's teaching staff are categorised as Professor/Associate Professor and Senior Lecturer/Lecturer. The total number of teaching staff for the bachelor's programme in Agroengineering consists of 101 people. The total number of staff for the master's program in the same degree programme amounts to 20 people. Four staff members teach in the PhD programme. In the Food Technology programme, 104 people teach undergraduates, 24 teachers are responsible for the master's, and 12 people for the PhD programme. As such, the ratio of students to teachers corresponds to the norms of bachelor's degree 12:1, master's degree 6:1, doctoral degree 4:1, defined by the rules established by the Order of the Minister of Education and Science of the Republic of Kazakhstan (2018).

The majority of staff members are currently Candidates of Science, which corresponds to the German equivalent of habilitation candidate. According to the departmental needs, new staff members are hired on a competition basis. Vacancies are published on the university's website. Lecturers are typically appointed from the ranks of KATRU graduates. In some cases, senior master's students are hired as young teaching staff. In 2023, the department invited a number of foreign academics to teach in the degree programmes.

Regarding the performance review of its staff, the university conducts anonymous surveys ("teachers through students' eyes") containing a mix of fixed and open-ended questions. However, these evaluations are not obligatory. Insights and conclusions from these evaluations are drawn individually by the teachers and discussed with students. The final survey results are received by the administrative office and the Head of Department, before the final percentage results are made available to the teachers. Additionally, the HEI has created an official competition among teachers, in which points are allocated for each staff member.

Moreover, the staff is included in the design and redesign of the curricula. Syllabi are discussed annually. Proposals for changing the course plans or adding aspects are made by teachers. Based on this information, the auditors are interested in whether members of

the staff feel sufficiently included in the curriculum design. Unanimously, staff members state that they are satisfied with their role in shaping the course contents. According to them, the curriculum is discussed among the staff before it is sent to the rector. Moreover, teachers who went abroad are encouraged to contribute their experience to the curricula design.

In order to improve the professional competence of teaching staff, advanced training in production is organised in cooperation with industry partners and local companies. Furthermore, the university makes clear that staff with pedagogical expertise are encouraged to operate with a variety of didactical methods. The staff members confirm such application in both lecture formats as well as practical training courses. Staff members report that modern technology is implemented on a regular basis, including video lectures on Zoom offered via the “Platonus” platform.

In accordance with the overarching internationalisation plans, the university encourages the training of its staff with a focus on improving English language skills. For this reason, a TOEFL centre has recently been established and the university offers free English language clubs as well as access to the Coursera platform. Year-long courses for pedagogical training as well as professional development trainings every three years are offered. Teachers are also sent abroad. During the on-site visit, the experts learn that in 2023, one billion Kazakh Tenge were raised for international conferences. Teachers receive a daily allowance from the government and report that they are invited as speakers at international conferences. One of the governmental programmes the staff makes use of is the international scholarship of the President of the Republic of Kazakhstan “Bolashak” / “Bolashaq”. In addition to these incentives, the university offers a reduction of the teaching load. From the annual total of 660 teaching hours, staff members with active research projects can receive a deduction of 165 hours. Research results are also included in the curricula. Technical equipment purchased for projects can also be used for the faculty and the labs. All in all, the academic staff members emphasise that from their point of view, all programmes under review receive sufficient funding for teaching and learning activities. They also point out their involvement in the decisions of the HEI by taking inventory of what equipment is needed.

All staff members interviewed show a high level of engagement and motivation for their tasks as well as an overall attachment to the department and university. Moreover, they seem to be satisfied with the opportunities provided by the HEI. They confirm that conditions for research and teaching are sufficient and up to standard. The ministry provides further resources and support for the staff. Staff members are included in the curricula design and evaluation of the programmes via surveys conducted twice a year. However, given the pronounced internationalisation strategy and goals of the university, the experts

agree that English language competencies need to be enhanced. The present staff members raise this point as well during the discussion and the experts note their willingness and intrinsic interest to invest the necessary time. Furthermore, and in line with enhancing the HEI's position in global educational rankings, the auditors agree that there should be a stronger support for international mobility as well as more exchange with foreign institutions and lecturers. Pointing to the rather high average age of staff members (>50), the experts emphasise the university's responsibility to accommodate generational change.

Criterion 3.2 Student Support and Student Services.
--

Evidence:

- Self-Assessment Report (SAR)
- University website: <https://kazatu.edu.kz/en/facultet/tehnikeskij-fakultet>
- Discussion during the audit

Preliminary assessment and analysis of the experts:

In the SAR, the university lists the ratio of students to teachers as corresponding to the norms of bachelor's degree 12:1, master's degree 6:1, doctoral degree 4:1, defined by the rules established by the Order of the Minister of Education and Science of the Republic of Kazakhstan (2018).

In order to facilitate communication and staff-student relations, the department provides two ways of students' support: Supervisors are responsible for all academic matters and advisors support students in matters of general or social concerns. Student feedback is mainly incorporated through evaluations and individual conversations between staff and students. Regarding the implementation of student surveys, the experts are told that if the majority of students take issue with certain aspects or wish to see another subject on the syllabus, the department will adjust accordingly. Regarding curriculum design and the active involvement of students, the HEI states that syllabi are discussed annually with the respective groups.

Further, the university is dedicated to accommodating students with disabilities. During the on-site discussions, management clarifies that those students are eligible to receive grants from the government. Moreover, two designated funds are available for these students from the city mayors. In addition to financial aid, the university reports that special resources for blind students are available at the library, funding is provided for deaf-blind students, and the HEI offers special desks as well as tactile structures in the floors of the university buildings.

The experts notice that the students seem content with the support structures provided for them as well as the resources available to them. Moreover, the experts are told that students feel well-prepared for the job market and through the means provided to them by the university, in the small practical work groups, and the internships. However, the students also inform the auditors that they hope for more international mobility opportunities if the accreditation procedure is successful (see above **1.3** on student mobility).

Criterion 3.3 Funds and equipment
--

Evidence:

- Self-Assessment Report (SAR)
- Discussion during the audit
- Guided tour through the laboratories

Preliminary assessment and analysis of the experts:

As a state university, KATRU's income comes from basic funding from the government. The income plan depends on the number of students admitted to the university. Based on this, an investment plan is drawn up for each department. The budget considers facilities and infrastructure, human resources, development, including lecturers and staff, academic and educational operating costs, consumables, and student activities and development.

In the Self-Assessment Report, the university lists four laboratories for Agroengineering and Food Technology respectively, in which both regular classes as well as practical production courses take place. In addition to more than 60 agreements that have been signed with research institutes and enterprises of the Northern and Southern regions of the Republic of Kazakhstan, the university is in the process of establishing more long-term contracts to facilitate places for professional practice for the students. The university further provides a detailed list of all purchases made to equip classes and students' research work (239.484.251 Tenge in 2022-23).

The classrooms and lecture halls across different buildings are equipped with modern audio-visual technology, which enables staff to provide students with video lectures as well. Students have access to the university's library system and facilities. In addition to Russian and Kazakh titles, the library holds a small selection of English monographs. Moreover, students have access to relevant databases and all relevant academic journals necessary for research in the disciplines of Agroengineering and Food Technology. The library facilities provide ample space for individual study work as well as group-work rooms and workspaces equipped with computers.

The experts are able to obtain a nuanced understanding of the facilities during the guided tour on-site. The auditors appreciate the well-equipped labs and note the modern machinery, such as model-tractors, available for demonstrative use as well as hands-on work. Moreover, the classrooms and labs visited provide enough space for students to perform experiments or conduct research. Students have access to modern software, such as farm management and simulation software by the German company Claas, via the computer work stations in the classrooms. Group sizes of seminars seem to be small, which allows for an effective teacher-student ratio. The group of interviewed students and staff members equally express their satisfaction with the equipment available to them as well as the support structure in place. The experts also visit the experimental production shops for processing vegetable oil, meat, milk and dairy as well as bread and bakery products. During the visit, they can observe the students working in groups with the assistance of the teachers. In addition, the research laboratories such as food processing technologies laboratory and the laboratory of Foodstuffs seem to be well-equipped for the research projects of the master's and PhD students. The experts are of the opinion that the technical equipment for food processing in the laboratories is very good. The same goes for the quality control equipment.

During the on-site visit, students and teachers expressed their satisfaction with the laboratories and equipment. At the end of each year, the lecturers have the opportunity to submit a list of new equipment they need. They believe that there is sufficient funding available, and that the university is committed to supporting the department in view of the rapid development of technology.

Overall, the experts conclude that the university has secure funding and reliable financial planning. in place. The KATRU campus and infrastructure are found to be adequate and sufficient. The auditors also conclude that the university has sufficient space, classrooms, facilities, and laboratories that are well-equipped for teaching and research.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:

Criterion fulfilled.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions
--

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The Module Handbook for the respective Bachelor, Master, and PhD programmes under review are not available on the English website of the university and thus not accessible to students and stakeholders. Therefore, the expert group encourages KATRU to update the English websites of the programmes and include information about the intended learning outcomes, study plans, and module descriptions of each degree programme and thus, make them available to all parties involved.

Moreover, the experts note that there are several inconsistencies within the module handbook regarding format and content in need of revision. They expect that the overall formatting and layout must be redone and checked for proper English language usage and translation from Kazakh/Russian. English titles should be used consistently throughout. Expressions such as “anti-corruption culture” (see module “Labor protection and basics of life safety”) must be rephrased comprehensively. Furthermore, the experts expect consistent naming of the study courses and a page numbering of the entire documents to ensure consistency and traceability.

In addition, modules should be assigned a systematic and comprehensible course code. Elective and compulsory courses need to be clearly distinguished. The experts also expect the single modules to be described adequately, with only a brief reference to the grading system used (an appendix can serve to explain this system in greater detail). In doing so, the university aids students in easily finding relevant information of the desired study programmes. Moreover, the university can make use of these module descriptions to demonstrate the state-of-the-art equipment students benefit from. Overall, important information of the modules’ content should be summarised and aligned with the reality of the facilities and teaching methods in the respective courses. References to relevant literature needs to be added where necessary.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Sample diploma for each degree programme
- Sample diploma supplement for bachelor's and master's programmes
- Sample transcript of record for bachelor's and master's programmes
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Upon review of the documents, the experts confirm that students of these degree programmes are awarded a Certificate, a Diploma Supplement, and a Transcript of Records (in Kazakh) after graduation. The documents contain all necessary information about the respective degree programme, including the graduate, the award, the awarding institution, and the grading system. The Transcript of Records lists the graduate's full academic history. The expert group takes note that the university does not provide these documents for the PhD programme, which, however, is not compulsory according to the ASIIN criteria.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report (SAR)
- University website: <https://kazatu.edu.kz/en/facultet/tehniceskij-fakultet>
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The university's website lists relevant information on the academic policy of the HEI. Moreover, as stated in the Self-Assessment Report, the university makes use of "internal regulatory documents" (see SAR, Criterion 4.3) including the rules of admission, internal regulations, regulations on the procedure for expulsion, transfer and restoration, granting academic leave to students, regulations on the organization of academic mobility of students, regulations on the organization of dual education, on the recognition of non-formal education, the Code of Academic Integrity, rules for the organization of academic performance monitoring during the current, intermediate, and also the final certification, the regulation on checking written works for plagiarism, etc. The auditors conclude that the rights and duties of the HEI and the students are thus defined. However, not all the documents on the website are easily accessible, and some of the links provided don't work. Therefore, the

experts consider that all relevant rules and regulations should be published on the Department's website in a clear manner in order to increase the transparency and completeness of the information available to all stakeholders.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:

The University makes available revised and updated English versions of the Module Handbooks for all the programmes audited. Links are also provided to the University website where they are published. In addition, the module handbooks contain information on the intended learning outcomes and module descriptions for each programme.

The experts review the module handbooks provided and consider that they are generally better structured and now contain all the necessary information in a clear and correct way. They appreciate the efforts of the study programmes. The module handbooks are also published in English on the university's website and are available to all stakeholders. Therefore, the auditors consider that this requirement has been met. For a future revision, they recommend that the document be further improved by adding page numbers, providing links from the table of contents to each module, and correcting errors in spelling, formatting and the reading list.

Criterion fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report (SAR)
- Exemplary student survey
- Discussion during the audit

Preliminary assessment and analysis of the experts:

In order to improve the quality of the study programmes and remain competitive, KATRU has implemented an Internal Quality Assurance System through which quality policies are implemented by way of a Quality Committee. These policies serve to realise the mission, vision, and strategic development of the university (see SAR, pg. 77-78) while meeting the needs of all stakeholders. Audits with internal auditors, including staff, students, and employers, are conducted according to a special schedule. At the Faculty of Engineering, the first of such audits was conducted in October 2023. This central committee conducts surveys to gain an overview of how satisfied the staff, students, and employers are with the educational programmes. The university states that in 2023, approximately 1500 students and 200 teachers took part in such a survey. Departments have separate committees, responsible for monitoring existing programmes as well as developing new ones. As a research institution, the university has incorporated the so-called “Research and Development Activities” into the Internal Quality Assurance System accordingly.

In addition to the aforementioned internal quality control procedures, the university lists external accreditation procedures, including national accreditation and international accreditation of specific programmes. The latter is conducted by international agencies. Furthermore, the university participates in national ratings conducted by the Independent Agency for Accreditation and Rating, and in international rankings.

As part of the internal quality assurance, the university carries out a series of questionnaires addressed to students, graduates and employers. One such survey is related to the overall satisfaction with the educational programmes. Students can review which ones are deemed more attractive to them based on advantages and disadvantages. In this vein, the university reports to consider closing down less attractive programmes. Moreover, the university provides questionnaires for the feedback of industry partners and stakeholders on the website. In the discussion, the HEI’s management also mentions surveys for staff and students to rate and review the facilities, such as the canteen or library.

In order to monitor the quality of teaching, students at KATRU can participate in anonymous questionnaires and give feedback on their teachers. On the one hand, the lecturers explain that the Dean of the faculty receives the results of the questionnaires of the teaching and informs the teachers generally about the results. If there are problems, these are discussed with them and solutions and measures are implemented. They consider the students' feedback and if most of them think that something is missing in the course, they consider changing it. On the other hand, the students interviewed affirm that anonymous surveys are carried out at the end of each semester and that they are encouraged to participate. They explain that there are three types of surveys: evaluation of the study programmes, of the teachers and of the administrative staff (e.g. library). They appreciate that their feedback is collected, and they believe that the results are considered and applied by the programmes. The students note that there is direct feedback through the counsellor, e.g. regarding personal and social problems, and the supervisor (regarding the academic situation in general). However, the results of the questionnaires performed in the modules regarding the performance of the teachers are not discussed with the students.

The problems identified are immediately discussed and resolved at departmental meetings or submitted to the Faculty's Academic Quality Council for consideration and decision. The lecturers first discuss the content of the curriculum, and then the Dean of the Faculty receives it, and in the Academic Council the probable changes and proposals for the development of the programmes are discussed. Lecturers and students emphasise that student representatives from the bachelor's, master's and PhD programmes are an active part of the Academic Council.

In summary, the expert group gains the impression that the overall quality management system is effective in identifying weaknesses and improving the programmes. All groups and stakeholders involved see themselves to be heard and sufficiently involved in the quality assurance system. Nevertheless, the auditors recognise the necessity to make the students' feedback available to the staff directly and in its entirety to consistently guarantee the quality of the teaching. The teaching evaluation needs to be organised in such a way that feedback of the questionnaire results to the students is ensured.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:

The university describes the procedure for evaluating teaching and providing feedback to students in its statements. This starts with designing the survey, distributing it, and ensuring anonymity. They also provide a sample of the results of the survey using statistical

methods and explain that the results are analysed to identify common trends and themes. Meetings between programme coordinators and students also take place regularly in the form of open discussions or round tables, as the minutes of one meeting provided show. Furthermore, the university states that students are given access to the results of surveys and meetings, together with an action plan for quality improvement.

The auditors appreciate the explanations given and the evidence provided. They consider that the meetings between programme coordinators and student representatives and the consideration of direct feedback are a very important part of the feedback process. However, as the students interviewed during the visit explained that the results of the questionnaires carried out in the modules on the performance of the teachers are not discussed with them, and the evidence and description provided do not show proof of the way, time and place where the results of the questionnaires are discussed with the students, the experts consider that this aspect is not yet fulfilled. Feedback cycles need to be closed and students need to be directly informed of the results of course questionnaires. The faculty should establish and institutionalise a clear procedure.

Criterion not fulfilled.

D Additional Criteria for Structured Doctoral Programmes

Criterion D 1 Research

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The university states that the main purpose of the PhD programmes is “to train highly qualified, competitive PhD doctors with scientific research methods, with relevant professional skills and competencies in scientific and scientific-pedagogical activities in conditions of rapid updating and growth of information flows in the field of agriculture”. The programmes in Agroengineering and Food Technology consist of three cycles of disciplines: a cycle of basic disciplines of 25 ECTS (13.9%) and a cycle of a profile disciplines of 20 ECTS (11.1%), research work amounting to 123 ECTS (68.4%), as well as the final certification of 12 ECTS (6.6%), scientific publications, writing and defending the doctoral dissertation. The curricula of the structured PhD programmes focus on the development of research skills. As presented in the SAR, students have two semesters of theoretical input (e.g., “Methods of Scientific Research” and “Academic Writing” with 5 ECTS respectively) and pedagogical training (10 ECTS), while the third semester is split between research practice and project work. The remaining three semesters are dedicated to the PhD project entirely (see above **1.1** and **1.3** on Learning Outcomes and Curriculum

The auditors are told that doctoral candidates are given two months by the university to find a suitable PhD topic. As they have a certain familiarity with the respective field through their previous studies, students find it rather unproblematic to choose a topic. They are supported by a supervisor they choose, and together they decide on their topic. In a second step, this topic is presented to a commission’s board of the faculty/the department. Furthermore, they are required to publish papers in recognised journals with a high impact factor.

During the audit, the PhD students express their satisfaction with the programmes’ structure, the support provided by the faculty and university, as well as the funding and equipment available to them. The experts observe for themselves that the university provides

good conditions for the research projects. The group of experts notices the close relation between students and the HEI. Many PhD students already concluded their bachelor and master at KATRU. Through this familiarity with curriculum and staff, they feel encouraged to continue with their doctoral education at this university.

After reviewing the learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the learning outcomes of the PhD programmes need to be reviewed and standardised in all documents and made available to all stakeholders, e.g. on the website.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 1:

See above **Criterion 1**.

Criterion not fulfilled.

Criterion D 2 Duration and Credits

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The structured PhD programmes Agroengineering and Food Technology have a duration of six semesters and amount to 180 credits. The former was offered for the first time in 2019, the latter in 2020. The average number of enrolled students in the first year is two for the Agroengineering programme and four for the Food Technology programme (see above **1.5** on Workload).

During the on-site visit, the students confirm that the completion of the research project is doable within the allotted timeframe of three years. Although the PhD programmes currently do not bring forth a high number of graduates, the experts confirm that the dissertations presented at the audit meet the scientific standards in content and form.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 2:

Criterion fulfilled.

Criterion D 3 Soft Skills and Mobility

Evidence:

- Self-Assessment Report (SAR)
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Soft skills are included in some of the PhD modules, such as “Academic Writing” and “Pedagogical training”. PhD students report a good preparation for the job market after graduation. The industry representatives appreciate doctoral graduates from the areas under review. An interesting fact is that the most of them

Internal mobility is provided for students overall and PhD students via agreements with other universities in Kazakhstan. Special programmes exist from the Ministry of Education as well, for which students can apply for funding.

Regarding international mobility, the university management explains that there are about 500 state grants per year for postgraduate students to collaborate with international universities. Doctoral students confirmed that there are several government-funded mobility programmes to go abroad. Furthermore, the SAR indicates that there are multiple collaborative endeavours with scientists from foreign universities and research institutions, including the University of Michigan, Yerevan State University, and the University of Krakow, among others, in the pursuit of doctoral research projects.

As mentioned before, the experts are impressed with the overall satisfaction of PhD students. Nonetheless, the experts find it necessary to improve the opportunities and support for students’ international mobility through an appropriate framework. The same holds true for the English language skills of the students. The experts seem room for improvement in this area to ensure employability after graduation and make graduates more competitive for the academic job market.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 3:

Criterion fulfilled.

Criterion D 4 Supervision and Assessment

Evidence:

- Self-Assessment Report (SAR)
- Rules for final certification of students
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Regarding assessment, at the end of the academic year, a doctoral student undergoes an academic certification for the implementation of an individual work plan. The final research results are the dissertation, either in book format or cumulative.

The organization and conduct of the defence of doctoral dissertations is carried out in accordance with the Rules for awarding academic degrees, approved by the order of the Minister of Education and Science of the Republic of Kazakhstan dated March 31, 2011 No. 127 (registered in the Register of state registration of regulatory legal acts of the Republic of Kazakhstan under No. 6951).

The final result of the research is a doctoral dissertation which is carried out under the supervision of two professors one of whom is a scientist from a foreign university.

The requirements for the doctoral research projects are as follows:

- 1) Related to the main problems of the area;
- 2) relevant topic with scientific novelty and practical importance;
- 3) based on modern theoretical, methodological and technological achievements of science and practice;
- 4) based on modern methods of processing and interpreting data by means of computers;
- 5) use modern scientific research methods.

In respect to the career paths after completing the PhD, candidates report that meetings with staff are held after their graduation, which may provide them with job offers. They also make use of the Center for Employment, which helps with the job search. They report that the local industry also offers jobs after students complete an internship. During their research and supervision, supervisors can also offer jobs to the candidates or aid them in the process of getting on the job market. As stated in the SAR, the university invites international researchers for consultation and support with the research projects. As mentioned throughout, the students present for the discussions express their satisfaction with the support and supervision provided by the faculty and the university.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 4:

Criterion fulfilled.

Criterion D 5 Infrastructure

Evidence:

- Self-Assessment Report (SAR)
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Doctoral candidates are able to conduct their project work and experiments in the faculty laboratories. As stated in **3.3 Funds and Equipment**, the students have good facilities, spacious labs, and specialised technology at their disposal. Concerning materials, doctoral students have easy access to the Platonus platform, which holds all relevant documents.

The experts are especially satisfied with the facilities and the well-equipped laboratories. Doctoral candidates have access to the library as well as scientific databases for their research. Based on the on-site lab tour, the experts conclude that PhD students are provided with a suitable environment to successfully and independently conduct research.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 5:

Criterion fulfilled.

Criterion D 6 Funding

Evidence:

- Self-Assessment Report (SAR)
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Doctoral candidates are enrolled on a fully funded scholarship basis. These scholarships are provided by the government with the objective of supporting students financially. The doctoral candidates are highly satisfied with the financial support, and as reported during the audit, otherwise they could not afford to complete a PhD.

In conclusion, the expert group finds that the university and the state grants provide enough financial support for doctoral candidates and that the doctoral programme under review has adequate and sustainable funding.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 6:

Criterion fulfilled.

Criterion D 7 Quality Assurance

Evidence:

- Self-Assessment Report (SAR)
- University's website: <https://kazatu.edu.kz/en/pages/obucenie/doktorantura>
- Discussion during the audit

Preliminary assessment and analysis of the experts:

According to the university, rights and duties of the doctoral candidates as well as admission rules are available on following website of the university: <https://kazatu.edu.kz/en/pages/obucenie/doktorantura>. By revising the English version of the website, the experts were not able to open the links to these documents in English. They seem to be only available in Russian and Kazakh language. The academic policy is also available on the website (see above 4.3). During the audit, the doctoral students confirm that they have access to all regulations on the website and in the Platonus system.

As stated on the website, the research policy and strategy at KATRU is based on following pillars:

- Curiosity-driven Ethical and Responsible Research
- Integrity and Quality
- Collaboration and Integration
- Innovation & Creativity
- Engagement & Empowerment
- Encouragement of Free and Critical Thinking & Enquire

There are also clear rules about checking for plagiarism. Students' written assessments (diploma theses, master's theses and doctoral dissertations) are checked for the presence of borrowed material and the use of text with synonymous substitution of words and expressions without changing the meaning (paraphrasing), including the use of text translated

from another language (hereinafter referred to as borrowing). To check plagiarism, the module "Diploma theses/projects" (AIS "Platonus") of the "Software system to detect textual plagiarism in educational and scientific works "Antiplagiat-Kazakhstan.VUZ" is used.

During the audit, the experts gain the impression that the university follows rules of good scientific practice, for example, controlling plagiarism and unethical behaviour. In addition, rules and relevant information seem also to be found in the Platonus system and accessible for each enrolled student and for the staff.

Nevertheless, the auditors recommend to publish all the relevant rules and regulations as well as module handbooks on the department's website to increase transparency and completeness of the available information to the stakeholders. In addition, the PhD students' feedback needs to be made available to the staff directly and in its entirety to consistently guarantee the quality of the teaching. The teaching evaluation also needs to be organised in such a way that feedback of the questionnaire results to the students is ensured (see above **Criterion 5**).

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 7:

See above **Criterion 5**.

Criterion not fulfilled.

E Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

H 1. Reviewed and updated module handbook for all programmes

F Comment of the Higher Education Institution (07.11.2024)

The institution provided a detailed statement as well as additional documents.

The following quotes the comment of the institution:

Expert Opinion of ASIIN	Answer	Appendix
<p>Page 11</p> <p>During the discussions, the experts ask about the contact with industry and whether there is a link with employer companies for a partial assessment of the quality of graduate training. The programme coordinators explain that KATRU has a Centre for Professional Practice and Employment which monitors the employment of graduates at regular intervals of 3 months after graduation, 6 months and 1 year.</p>	<p>To ensure the relevance and quality of the “Agroengineering” and “Food Technology” educational programs, employers are actively involved in various aspects of the educational process.</p> <p>The main areas of our collaboration include:</p> <p>Participation in the Academic Committee:</p> <p>Representatives from companies and organizations in the fields of agroengineering and food technology are involved to integrate current needs and trends into the development of educational programs and research.</p> <p>Appendix 1.</p> <p>Participation in Final Certification:</p> <p>Employers participate in the final certification of students as members of certification committees. This ensures an independent assessment of the quality of graduates’ training and provides employers with the opportunity to evaluate their professional qualifications and readiness to address real professional tasks. Appendix 2.</p>	<ol style="list-style-type: none"> 1. Copies of the order regarding the composition of the faculty academic committee (Appendix 1). 2. Copies of the order regarding the composition of the final certification committee (Appendix 2). 3. Copies of the department's staff list (Appendix 3). 4. Copies of the order regarding the supervision of diploma projects (Appendix 4). 5. Protocol of the roundtable discussion (Appendix 5). 6. Approved schedule of guest lectures (program) (Appendix 6).

	<p>Regular monitoring of the quality of educational program implementation is conducted with employers by the Center for Career, Internships, and Employment. Employment monitoring helps the university enhance the quality of training competitive specialists, allows for the adaptation of educational programs, and supports employment, while also helping employers find qualified personnel.</p> <p>Involvement in the Educational Process:</p> <p>Conducting Classes: Company representatives hold classes, sharing their experience and practical skills with our students.</p> <p>Appendix 3</p> <p>Guiding Thesis Projects: Employers participate as supervisors of thesis projects, helping students create work aligned with real-world professional activities.</p> <p>Appendix 4</p> <p>Participation in Roundtable Discussions: Annual roundtable discussions with employers address current trends and challenges in agroengineering and food technology. This provides a platform for exchanging opinions and developing joint solutions.</p> <p>Appendix 5</p> <p>Guest Lectures: Specialists are regularly invited to deliver guest lectures on current topics:</p> <p>For the educational program "Agroengineering":</p> <p>1. Remote monitoring systems for the key performance indicators of</p>	
--	--	--

	<p>modern CLAAS combines and tractors. (2 hours)</p> <p>2. Organization of fieldwork and technical maintenance. (2 hours)</p> <p>3. Machinery and tools for soil conservation tillage systems. (2 hours)</p> <p>For the educational program "Food Technology":</p> <p>1. Enrichment of vegetable oils using ultrasonic homogenization and extraction. (2 hours)</p> <p>2. Development of dairy products for children with high nutritional and biological value. (2 hours)</p> <p>3. Development of a national menu for schoolchildren. (2 hours)</p> <p>Appendix 6.</p>	
<p>Page 12</p> <p>After reviewing the learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the learning outcomes of the respective programmes are not identical in all documents provided (e.g. programme descriptions, documents published on the website, Diploma Supplement).</p>	<p>Corrective Actions:</p> <p>Documentation Audit:</p> <p>Conduct a comprehensive audit of all documents, including learning outcome descriptions for relevant programs, taking into account professional and social competencies, website information, and diploma supplements, to identify and eliminate any discrepancies.</p> <p>Update all documents in accordance with the requirements of professional standards to ensure alignment with the learning outcomes of the educational program and course descriptions. Update materials in the AIS Platonus database and on the university website.</p> <p>Creation of a Unified Database:</p> <p>Create a centralized database that will contain up-to-date information about the educational program and learning outcomes, in accordance with the registry of educational programs of the Ministry of Science and Higher Education.</p>	<p>Appendix: Modular Handbooks</p> <p>Link on the website</p>

	<p>Regular Audits: Implement regular checks and reviews of documentation to prevent similar discrepancies in the future. This will help maintain high standards of quality and compliance with educational programs.</p>	
<p>Page 17</p> <p>The experts are of the opinion that the curriculum of the Bachelor's Degree Programme in Agricultural Engineering meets the necessary requirements. The proportion of practical teaching components such as internships and exercises is planned and impressively implemented. The need to include a number of centrally prescribed modules in the curriculum is not taken into account in this assessment. However, after reviewing the curriculum and taking into account the feedback from students and industry during the visit, the experts agree that the curriculum of the Bachelor's Degree Programmes in Agricultural Engineering and Food Technology should be updated in terms of content and aligned with the state of the art in the respective field. For example, a course on Food Safety could be added to the Bachelor's programme in Food Technology. Furthermore, the very good training facilities and the contents in the curriculum should be better reflected in the module descriptions and other related documents. The curriculum overview for each programme needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload. The learning outcomes for</p>	<p>Corrective Actions</p> <p>Curriculum Update:</p> <p>Initiate the process of revising the curriculum for undergraduate programs in Agricultural Engineering and Food Technology. As part of this revision, we will take into account feedback from students and industry representatives to ensure the relevance and practical orientation of the courses.</p> <p>Introduction of New Modules:</p> <p>Plan to include a course on food safety in the undergraduate program in Food Technology, aligning with current industry standards and student needs.</p> <p>Improvement of Module Descriptions:</p> <p>Pay special attention to updating module descriptions and other documents to better reflect learning opportunities and the content of the curricula.</p> <p>Appendix 7.</p> <p>Reformulating Learning Outcomes:</p> <p>Work on reformulating the learning outcomes for each module to make them more specific and clearer.</p> <p>Regular Review:</p> <p>Establish a practice of regular review and updating of the curriculum</p>	<p>Introduction of New Modules (Appendix 7).</p>

<p>each module should also be reformulated in a concrete and clear way.</p>	<p>and its components to maintain high standards and ensure alignment with current industry requirements.</p>	
<p>The experts conclude that the internationalisation strategy should be strengthened in all programmes under review by improving students' English language skills, providing more support for international student mobility and increasing exchanges with foreign institutions and teachers. The conditions and opportunities for going abroad, for example for a semester, should be improved.</p>	<p>To strengthen the internationalization of the educational programs "Agroengineering" and "Food Technology," the following actions are being carried out:</p> <ol style="list-style-type: none"> 1. Language courses for students to improve their foreign language proficiency. Appendices 8, 9. Monitoring language proficiency levels among students (responsible department: Foreign Language Department). Appendix 10. 	<ol style="list-style-type: none"> 1. Schedule for Language Courses (Appendix 8). 2. List of Students Participating in Language Courses (Appendix 9). 3. Schedule for Monitoring (Appendix 10). 4. Order for Allocation of Funds from the Republican Budget of the Ministry of Science and Higher Education (Appendix 11). 5. Schedule of Events in English (Appendix 12). 6. Order for Industrial Internship (Appendix 13).
<p>Page 31</p> <p>However, given the pronounced internationalisation strategy and goals of the university, the experts agree that English language competencies need to be enhanced.</p>	<ol style="list-style-type: none"> 2. Based on the monitoring results, the opening of English-language groups is planned. 3. Allocation of funds from the republican budget of the Ministry of Science and Higher Education for financial support of external academic mobility. Appendix 11. 4. Conducting events in English with students: <ul style="list-style-type: none"> -Joint event with the British Embassy: Regenerative Agriculture Event Proposal Objectives: <ul style="list-style-type: none"> • To raise awareness of regenerative agriculture. • Understand the challenges/barriers to introducing regenerative agriculture in Kazakhstan. <p>Format:</p> <p>Hold a documentary screening event of the film "Six Inches of Soil."</p> <ul style="list-style-type: none"> • Hosting an international conference with FAO dedicated to World Soil Day at KATRU. • Participation in international exhibitions: "Jańa Dala / Vet Astana '2024" – International Exhibition on Feed and Veterinary Medicine "Jańa Dala / Farm Astana '2024" – International Livestock and Poultry Exhibi- 	

	<p>tion "Jaña Dala / Pet Food '2024" – International Exhibition of Products and Services for Pets (in the sections on meat and agricultural machinery). Appendix 12.</p> <p>5. Annually sending 3rd-year students abroad for internships under the Doyle and LOGO programs. Appendix 13.</p>	
<p>The Module Handbook for the respective Bachelor, Master, and PhD programmes under review are not available on the English website of the university and thus not accessible to students and stakeholders. Therefore, the expert group encourages KATRU to update the</p> <p>English websites of the programmes and include information about the intended learning outcomes, study plans, and module descriptions of each degree programme and thus, make them available to all parties involved.</p>	<p>Currently, the module handbooks:</p> <p>They have been updated, translated into English, and posted on the university website for access by all interested parties. Additionally, they include information on the planned learning outcomes and module descriptions for each program.</p>	<p>Link to the website for modular reference books.</p>
<p>Nevertheless, the auditors recognise the necessity to make the students' feedback available to the staff directly and in its entirety to consistently guarantee the quality of the teaching. The teaching evaluation needs to be organised in such a way that feedback of the questionnaire results to the students is ensured.</p>	<p>Description of the information collection process on quality and student feedback:</p> <p>Surveying:</p> <p>Survey Design: Questions are formulated to cover various aspects of the educational process, including teaching quality, learning materials, availability of help and support, as well as the overall atmosphere within the study group. (Appendix 14)</p> <p>Survey Distribution: Surveys are distributed to students via email, educational platforms, or during class sessions. Participant anonymity is guaranteed to ensure that students feel comfortable expressing their opinions freely. (link)</p> <p>Data Collection and Analysis:</p> <p>After the survey collection period</p>	<p>Survey Questions (Appendix 14).</p> <p>Survey Results (Appendix 15).</p> <p>Protocol of Meeting with Students (Appendix 16).</p>

	<p>ends, the data is processed using statistical methods. The results are analyzed to identify common trends and issues. (Appendix 15: Analysis)</p> <p>Meetings Between Administrators and Students:</p> <p>Frequency of Meetings: Meetings are held on a regular basis, such as during advisor sessions or as needed with university leadership. These meetings can be organized as open discussions or roundtable sessions. (Appendix 16)</p> <p>Informing Students of Results:</p> <p>Results Report: Students are provided with access to the outcomes of surveys and meetings, along with an action plan for quality improvements. This approach enhances transparency and fosters student engagement in the process.</p> <p>Discussion of Changes: It is essential for students to see the outcomes of their feedback and understand that their opinions matter.</p> <p>This process not only helps gather information but also fosters a partnership between students and the university administration.</p>	
--	---	--

G Summary: Expert recommendations (18.11.2024)

Taking into account the additional information and the comments given by KATRU, the experts summarise their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Agroengineering	With requirements for one year	30.09.2030	EUR-ACE®	30.09.2030
Ma Agroengineering	With requirements	30.09.2030	EUR-ACE®	30.09.2030
PhD Agroengineering	With requirements	30.09.2030	—	
Ba Food Technology	With requirements	30.09.2030	—	
Ma Food Technology	With requirements	30.09.2030	—	
PhD Food Technology	With requirements	30.09.2030	—	

Requirements

For all programmes

- A 1. (ASIIN 1.1, D1) The Learning Outcomes need to be reviewed and standardised in all documents (e.g. Diploma supplement, website etc.).
- A 2. (ASIIN 1.1) Ensure that the Learning Outcomes are transparently anchored, published and available to all stakeholders and the information is identical for all stakeholders across the relevant platforms.
- A 3. (ASIIN 1.3, 1.5) The syllabus of each programme needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload.
- A 4. (ASIIN 1.5) Verify student workload by establishing a formal mechanism to systematically monitor actual student workload, for example by including appropriate questions in summative course questionnaires and adjusting ECTS credits awarded accordingly.

- A 5. (ASIIN 5) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

Recommendations

For all programmes

- E 1. (ASIIN 1.3, D3) It is recommended to improve the opportunities and support for students' international mobility through an appropriate framework.
- E 2. (ASIIN 1.3, 3.1, D3) It is recommended to enhance the internationalization strategy by improving English language competences of staff members and students, stronger support for international mobility of the teaching staff and more exchange with foreign institutions and lecturers.
- E 3. (ASIIN 1.3) It is recommended to further revise and update module handbooks and improve their presentation format with appropriate list of relevant literature.
- E 4. (ASIIN 4.3, D7) It is recommended to publish all the relevant rules and regulations on the department's website to increase transparency and completeness of the available information to the stakeholders.

For the Bachelor's Degree Programmes in Agroengineering and Food Technology

- E 5. (ASIIN 1.3) The content of the curriculum should be updated and harmonised with the state of the art in the field.

H Comment of the Technical Committees 08 – Agriculture, Forestry and Food Sciences (16.09.2024)

Assessment and analysis for the award of the ASIIN seal:

The Committee discusses the procedure and agree with the opinion of the expert team. However, one of the recommendations, E5, is phrased in a vague way that makes it hard to discern how to fulfill it. According to the expert team and Dr. Vega, a mild issue arose during the audit when it came to the curricula of the Bachelor's degree programmes. According to the experts, it would help if the programmes contained more content that reflects current concerns in industry and academia. This is why the following phrasing is proposed:

"It is recommended that the curricula contain more courses on current concerns of the respective fields."

Assessment and analysis for the award of the EUR-ACE® Label:

The Technical Committee deems that the intended learning outcomes of the degree programmes do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture.

The Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Agroengineering	With requirements for one year	30.09.2030	EUR-ACE®	30.09.2030
Ma Agroengineering	With requirements for one year	30.09.2030	EUR-ACE®	30.09.2030

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
PhD Agroengineering	With requirements for one year	30.09.2030	–	
Ba Food Technology	With requirements for one year	30.09.2030	–	
Ma Food Technology	With requirements for one year	30.09.2030	–	
PhD Food Technology	With requirements for one year	30.09.2030	–	

Requirements

For all programmes

- A 1. (ASIIN 1.1, D1) The Learning Outcomes need to be reviewed and standardised in all documents (e.g. Diploma supplement, website etc.).
- A 2. (ASIIN 1.1) Ensure that the Learning Outcomes are transparently anchored, published and available to all stakeholders and the information is identical for all stakeholders across the relevant platforms.
- A 3. (ASIIN 1.3, 1.5) The syllabus of each programme needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload.
- A 4. (ASIIN 1.5) Verify student workload by establishing a formal mechanism to systematically monitor actual student workload, for example by including appropriate questions in summative course questionnaires and adjusting ECTS credits awarded accordingly.
- A 5. (ASIIN 5) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

Recommendations

For all programmes

- E 1. (ASIIN 1.3, D3) It is recommended to improve the opportunities and support for students' international mobility through an appropriate framework.
- E 2. (ASIIN 1.3, 3.1, D3) It is recommended to enhance the internationalization strategy by improving English language competences of staff members and students, stronger support for international mobility of the teaching staff and more exchange with foreign institutions and lecturers.
- E 3. (ASIIN 1.3) It is recommended to further revise and update module handbooks and improve their presentation format with appropriate list of relevant literature.
- E 4. (ASIIN 4.3, D7) It is recommended to publish all the relevant rules and regulations on the department's website to increase transparency and completeness of the available information to the stakeholders.

For the Bachelor's Degree Programmes in Agroengineering and Food Technology

- E 5. (ASIIN 1.3) It is recommended that the curricula contain more courses on current concerns of the respective fields.

I Decision of the Accreditation Commission (06.12.2024)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discusses the procedure and follows the assessment of the experts and of the technical committee 08.

Assessment and analysis for the award of the EUR-ACE® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programmes Bachelor and Master in Agroengineering do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Agroengineering	With requirements for one year	30.09.2030*	EUR-ACE	30.09.2030*
Ma Agroengineering	With requirements for one year	30.09.2030*	EUR-ACE	30.09.2030*
PhD Agroengineering	With requirements for one year	30.09.2030	-	-
Ba Food technology	With requirements for one year	30.09.2030	-	-
Ma Food technology	With requirements for one year	30.09.2030	-	-
PhD Food Technology	With requirements for one year	30.09.2030	-	-

*Subject to the approval of the ENAEE Administrative Council

Requirements

For all programmes

- A 6. (ASIIN 1.1, D1) The Learning Outcomes need to be reviewed and standardised in all documents (e.g. Diploma supplement, website etc.).
- A 7. (ASIIN 1.1) Ensure that the Learning Outcomes are transparently anchored, published and available to all stakeholders and the information is identical for all stakeholders across the relevant platforms.
- A 8. (ASIIN 1.3, 1.5) The syllabus of each programme needs to be revised to show clearly the structure (compulsory and elective courses) and the correct workload.
- A 9. (ASIIN 1.5) Verify student workload by establishing a formal mechanism to systematically monitor actual student workload, for example by including appropriate questions in summative course questionnaires and adjusting ECTS credits awarded accordingly.
- A 10. (ASIIN 5) Close the feedback cycles and inform the students directly about the results of the course questionnaires.

Recommendations

For all programmes

- E 6. (ASIIN 1.3, D3) It is recommended to improve the opportunities and support for students' international mobility through an appropriate framework.
- E 7. (ASIIN 1.3, 3.1, D3) It is recommended to enhance the internationalization strategy by improving English language competences of staff members and students, stronger support for international mobility of the teaching staff and more exchange with foreign institutions and lecturers.
- E 8. (ASIIN 1.3) It is recommended to further revise and update module handbooks and improve their presentation format with appropriate list of relevant literature.
- E 9. (ASIIN 4.3, D7) It is recommended to publish all the relevant rules and regulations on the department's website to increase transparency and completeness of the available information to the stakeholders.

For the Bachelor's Degree Programmes in Agroengineering and Food Technology

- E 10. (ASIIN 1.3) It is recommended that the curricula contain more courses on current concerns of the respective fields.

Appendix: Programme Learning Outcomes and Curricula

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Bachelor's Degree Programme in Agroengineering**:

LO 1 - To generalize the skills of design and calculation of design development, technical drawings, modern computer-aided design in practice, selection and use of control and measuring tools.

LO 2 - Is able to carry out an economic assessment of the main production resources on the basis of a critical assessment of the forms and methods of modern management and regulatory legal documents and procedures for the creation of small and medium-sized businesses in agriculture and agrotechnical services.

LO 3 - To know the structure of scientific knowledge, methods of scientific research in the production process during the operation of the machine and tractor fleet and maintenance of agricultural machinery using automated processes, modern devices and issues of labor protection, compliance with safety regulations.

LO 4 - Master technical terms in the industry at a professional level, develop communication skills to solve problems in the professional field and form the need for mathematical knowledge, a highly educated person with a broad outlook, an anti-corruption culture and academic integrity.

LO 5 - To study the physical properties and chemical composition of working fluids, the device and principle of operation of hydro- and pneumatic drive devices of machines and apparatuses, the basics of thermodynamics and heat engineering, elements and parameters of electrical circuits, energy conservation and energy efficiency of production, apply theoretical and practical knowledge of electrical engineering, hydraulics and heat engineering.

LO 6 - To show the ability to classify agricultural machinery, skills and ability to perform repair, diagnostic, installation and commissioning works, adjustment of nodes, working bodies and mechanisms of machines, as well as control the process of operation of agrotechnological machines in production conditions, to distinguish types, varieties and varieties of cultivated plants.

LO 7 - Demonstrate the ability to select materials used in the repair and operation of machines and apparatuses, drawing up design estimates, calculation of design development and technological maps for the production of agricultural products.

LO 8 - To solve theoretical and practical issues of the application of innovative technologies and software in agricultural production, the use of physical and mechanical properties of structural materials in practical activities and advanced methods of planning and optimization of production processes of crop production and animal husbandry.

LO 9 - To carry out design and make calculations on the construction of agrotechnological machines, substantiation of the system of machines and equipment for crop production and animal husbandry, storage and processing of production products using modern software products.

LO 10 - Apply knowledge in the field of humanities, natural sciences and physical and mathematical sciences for self-improvement and professional growth of the individual.

LO 11 - Possess theoretical and practical knowledge in the field of processing and storage of crop, livestock products, as well as mechanization of forage harvesting and means, feed storages.”

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Master’s Degree Programme Agroengineering**:

“**LO 1** - Confirm readiness to conduct scientific research, calculation and technological work to substantiate the system of machines and equipment for the production of agricultural products.

LO 2 - Analyze phenomena, apply your knowledge and build your own argumentation, express your position on engineering and technical issues in the field under study.

LO 3 - Formulate and solve problems arising in the course of carrying out research work and organizational and managerial activities in the field under study.

LO 4 - Apply your knowledge at a professional level, express the ability to work in a team and the ability to master the culture of thinking, correctly express your thoughts in written and oral speech.

LO 5 - Possess the skills and ability to model, analyze, identify and solve technological and operational tasks by integrating knowledge, making judgments and making decisions.

LO 6 - Confirm the skills of pedagogical skills, analyze and evaluate scientific ideas of a systematic scientific worldview in professional activity.

LO 7 - To study the main provisions of the systems of agriculture and crop production with the use of digital technologies in the management of the process of cultivation of agricultural crops.

LO 8 - To demonstrate high professional qualities in the performance of scientific research, to process experimental data and analyze the results obtained.”

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **PhD Programme in Agroengineering**:

“**LO 1** - Integrate scientific and engineering knowledge as well as practical experience in improving technology in the development of agroengineering systems in the mechanization of agricultural production.

LO 2 - Plan scientific research based on modern scientific theories and methods of analysis.

LO 3 - Apply pedagogical skills and carry out research activities in the line of work with modern research methods.

LO 4 - Formulate, plan the goals and objectives of production, technological, organizational management activities in the field of agro-industrial complex.

LO 5 - Compare analyses of modern scientific achievements and evaluate the novelty, relevance and significance of scientific results in the research of area.

LO 6 - Confirm theoretical knowledge and experience, as well as generate new ideas of scientific worldview in professional activity.

LO 7 - Evaluate the advantages and disadvantages of equipment and technologies in modern agricultural production, taking into account the requirements of scientific and technological progress.

LO 8 - To express the ability to work in a team, to distinguish the value of academic integrity, to make decisions in various situations related to professional activity.”

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Bachelor's Degree Programme Food Technology**:

LO 1 - Acquire the ability and readiness to solve the tasks on the basis of fundamental and applied natural science knowledge in professional and socio-economic spheres of life and the basics of anti-corruption culture.

LO 2 - Speaks the language at a professional level in accordance with the educational program, freely translates the terms of the industry, has free communication skills.

LO 3 - Possess the skills of handling modern equipment in the field of professional activity, perform and read technical drawings.

LO 4 - Use the basics of processing, storage and processing technology to improve the efficiency of the processing industry and food production.

LO 5 - Organize the technological process at the enterprises of the food and processing industry, make organizational and managerial decisions, perform work on standardization and preparation of products for the conformity assessment procedure in the field of professional activity.

LO 6 - Organize and carry out quality control, parameters of technological processes and methods of processing raw materials and finished products.

LO 7 - Be able to operate various types of technological equipment in professional activities in accordance with safety requirements.

LO 8 - Demonstrate the ability to develop measures to improve the technological processes of production and be able to use the laws of mathematical modelling of processes in the design and conduct of research.

LO 9 - Evaluate the quality of services in the field of design and reconstruction of food industry enterprises.

LO 10 - To implement new technologies that provide rational use of raw resources, to receive a wide range of new food products."

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Master's Degree Programme Food Technology**:

LO 1 - To apply the acquired knowledge of the theoretical and methodological foundations of higher school pedagogy, vocational education in the implementation of educational activities.

LO 2 - Have the ability to communicate to solve problems of interpersonal and intercultural interaction

LO 3 - Possess the skills for written and oral professional communication in one of the foreign languages.

LO 4 - Have the skills to lead a team in the field of their professional activities, tolerantly perceiving social, ethnic, confessional and cultural differences.

LO 5 - Have the skills to plan and develop innovative technologies for the processing industry and food production based on scientific achievements.

LO 6 - To acquire skills and abilities to develop new methods and means of designing information systems based on modern technologies, to develop and study theoretical and experimental models of objects in the food and processing industry in order to introduce information technologies.

LO 7 - To apply knowledge of methodology and methods of experimental research in production and scientific activities.

LO 8 - Possess theoretical and practical fundamentals of waste-free technologies and technologies of deep processing of raw materials in the production systems of the food and processing industry.”

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **PhD Programme in Food Technology**:

LO 1 -To propose methodological approaches to improving food technology.

LO 2 - Have the skills to conduct research activities in the field of food technology using information and communication technologies.

LO 3 - To know the current trends and patterns of development of domestic science in the context of globalization of high-tech technologies.

LO 4 - Analyze and evaluate the socio-economic consequences of new phenomena in science, technology and technology in the professional sphere.

LO 5 - Apply professional knowledge and skills in the implementation of the tasks of innovative educational policy.

LO 6 - Have the ability to manage technologies, scientific research and commercialization of ideas in solving problems of the professional field of activity.

LO 7 - Apply scientific communication technologies in Kazakh, Russian and foreign languages.

LO 8 - To make a conclusion and make recommendations on the results of scientific research in the field of food products.

LO 9 - Analyze and apply the most reasonable innovative solutions to improve the safety and efficiency of food production”.

The following **curriculum** is presented for the **Bachelor's Degree Programme in Agroengineering**:

1 semester	2 semester	3 semester	4 semester	5 semester	6 semester	7 semester	8 semester
1100 Foreign language 3 prac. 5 ECTS Exam	1100 Kazakh (russian) language 3 prac. 5 ECTS Exam	2100 1 lec., 2 prac. 5 ECTS Exam	1100 Physical education. 2 prac. 2 ECTS Differentiated credit	3200 Measuring Systems 3229 Interchangeability of standardization and technical measurements 1 lec., 1 lab., 1 prac. 4 ECTS	3215 Hydropneumatic machines and drives 1 lec., 1 lab., 1 prac. 4 ECTS Exam	4236 Technology of construction materials 4237 Additive technologies and computer-aided design systems 1 lec., 1 lab., 1 prac. Exam	4218 Labor protection 1 lec., 1 lab., 1 prac. 4 ECTS Exam
1100 Information and communication technologies 1 lec., 2 prac. 5 ECTS Exam	1100 Foreign language 3 prac. 5 ECTS Exam	1100 Physical education. 2 prac. 2 ECTS Differentiated credit	2104 Basics of anti-corruption culture 2110 Innovative entrepreneurship 2111 Basics of economics and law Basics of the scientific researches 1 lec., 2prac. 5 ECTS Exam	3232 Fundamentals of animal husbandry 1 lec., 1 prac. 3 ECTS Exam	3309 Mechanization of animal husbandry I 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4223 Fundamentals of robotics 4230 CNC system (Fundamentals of Mechatronics) 1 lec., 1 lab., 1 prac. 4 ECTS Exam	4308 Basics of patenting and professional creative 4302 Patent Law 1 lec., 1 lab., 1 prac. 4 ECTS Exam
1100 Kazakh (russian) language 3prac. 5 ECTS Exam	1100 Political science and sociology 1 lec., 2prac. 4 ECTS Exam	2200 Physics 1 lec., 1 lab., 1 prac., 5 ECTS Exam	2202 Precision agriculture basics 1 lec., 1 lab., 1 prac. 4 ECTS Exam	3220 Theory of mechanisms and machines 1 lec., 1 lab., 1 prac. 4 ECTS Exam	3242 Machine parts and design basics 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4310 Mechanization of animal husbandry II 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4314 Mechanization of storage and processing of agricultural products 1 lec., 2prac. 4 ECTS Exam
1100 Cultural studies and psychology 1 lec., 2 prac. 4 ECTS Exam	1103 History of Kazakhstan 1 lec., 2 prac. 5 ECTS State certification	2200 Descriptive geometry and engineering graphics 1 lec., 2 lab. 5 ECTS Exam	2241 Combine harvesters 1 lec., 1 lab., 1 prac. 4 ECTS Exam	3221 Strength of materials 1 lec., 1 lab., 1 prac. 5 ECTS Exam	3233 Fuel lubricants and technical operation 3235 Modern technologies and equipment for the diagnostics of agriculture	4306 Reliability and repair of machines 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4200 Engineering economics 4231 Production management 1 lec., 1 prac. 3 ECTS Exam

0 Appendix: Programme Learning Outcomes and Curricula

					machinery 1 lec., 1 lab., 1 prac. 4 ECTS Exam		
1100 Physical education. 2 prac. 2 ECTS Differentiated credit	1100 Physical education. 2 prac. 2 ECTS Differentiated credit	2200 Computer graphics 2225 Draft execution automation. 1 lab., 2 prac. 4 ECTS Exam	2219 Theoretical mechanics 1 lec., 1 lab., 1 prac. 5 ECTS Exam	3222 Agreecultural machines II 1 lec., 1 lab., 1 prac. 5 ECTS Exam	3313 Operation of the machine and tractor fleet I 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4311 Operation of the machine and tractor fleet II 1 lec., 1 lab., 1 prac. 5 ECTS Exam	4207 Fundament als of design and build of agricultura 1 machinery and equipment 1 lec., 1 lab., 1 prac. 4 ECTS Exam
1216 Higher Mathematics I 1 lec., 2 prac. 5 ECTS Exam	1200 Chemistry 1 lec., 1 lab., 1 prac. 4 ECTS Exam	2238 Agricultural machines I 1 lec., 1 lab., 1 prac. 5 ECTS Exam	2240 Tractors and cars II 1 lec., 1 lab., 1 prac. 5 ECTS Exam	3226 Electrical engineering and the basics of electronics 3227 Electric machines and drives 1 lec., 1 lab., 1 prac. 4 ECTS Exam	3200 Fundamental of energy saving 3228 Heat engineering 1 lec., 1 lab., 1 prac. 4 ECTS Exam	4300 Design and organization of technical service 4307 Technical service in agriculture 1 lec., 1 lab., 1 prac. 4 ECTS Exam	4315 Pre diploma practice 2 ECTS Practice report
1239 Tractors and cars I 1 lec., 1 lab., 1prac. 4 ECTS Exam	1217 Higher Mathematic s 2 1 lec., 1 prac. 3 ECTS Exam	2200 Fundamenta ls of agronomy 2224 Fundamenta ls of crop production 1 lec., 1 lab., 1 prac. 4 ECTS Exam	PP 2300 Internship 5 ECTS Practice report	3300 Internship 4 ECTS Practice report	3300 Internship 4 ECTS Practice report	4300 Internship 4 ECTS Practice report	Final attestation 8 ECTSStat e exam or writing and defending a thesis
	1200 Educational practice 2 ECTS Practice report	-	-	-	-	-	-
4lec.+15 prac.+1lab.= 20 h./week	4lec.+14 prac.+1 lab.=18 h./week	5lec.+9prac. +6 lab.=20 h./week	5lec.+4prac. + 4lab.=13 h./week	6lec.+5prac.+6 lab.=17 h./week	6lec.+6prac.+ 6 lab.=18 h./week	6lec.+6prac. +6 lab.=18 h./week	5lec.+3pra c.+6 lab.=14 h./week
6 Exam 1 Differentiated credit	6 Exam 1 Differentiated credit 1 Final grade for practice	6 Exam 1 Differentiated credit	5 Exam 1 Differentiated credit 1 Final grade for practice	6 Exam 1 Final grade for practice	6 Exam 1 Final grade for practice	6 Exam 1 Final grade for practice	5 Exam 1 Final grade for practice
30 ECTS	30 ECTS	30 ECTS	30 ECTS	29 ECTS	31 ECTS	31 ECTS	29 ECTS
Component by selection 0 ECTS (0%)	Component by selection 0 ECTS (0%)	Component by selection 8 ECTS (26,7%)	Component by selection 5 ECTS (16,7%)	Component by selection 8 ECTS (27,5%)	Component by selection 8 ECTS (25,8%)	Component by selection 12 ECTS (38,7%)	Componen t by selection 7 ECTS (33,3%)

The following **curriculum** is presented for the **Master's Degree Programme Agroengineering**:

1 semester	2 semester	3 semester	4 semester
5201 Pedagogics of higher school 1 lec., 1 prac. 3 ECTS Exam	5201 Pedagogical training 2 ECTS Report	6308 Farming systems and crop production 1 lec., 2 prac. 5 ECTS Exam	6302 Research practice 5 credit Report
5201 Foreign language (professional) 3 prac. 5 ECTS Exam	5216 Digital technology in Plant Growing 5216 System of fertilizer of cultures in crop rotations 1 lec., 2 prac. 5 ECTS Exam	6318 Management and Decision making in Precision Agriculture 6318 GIS and remote sensing technologies 1 lec., 2 prac. 5 ECTS Exam	6511 Master student's research work, including implementation of master's thesis 17 ECTS Graded Credit
5208 Psychology of management 1 lec., 2prac. 5 ECTS Exam	5319 Technical support of technological processes in the system of precision farming 5320 Precision farming technologies in agriculture 1 lec., 2prac. 5 ECTS Exam	6204 Computer modelling 6214 Simulation systems 1 lec., 2prac. 5 ECTS Exam	Final attestation 8 ECTS Preparation and defense of a master's thesis
5208 History and philosophy of science 1 lec., 2prac. 5 ECTS Exam	5314 Theoretical foundations of mechanization of agricultural production in animal husbandry 5314 Testing of agricultural machinery 1 lec., 2prac. 5 ECTS Exam	6316 Crop yield modeling 6317 Fundamentals of design and construction of agricultural machinery and equipment 1 lec., 2prac. 5 ECTS Exam	-
5312 Theoretical foundations of mechanization of agricultural production in crop production 5312 Optimization of mineral nutrition of crops 1 lec., 2prac. 5 ECTS Exam	5206 Higher Engineering Mathematics 5215 Math modeling 1 lec., 2prac. 5 ECTS Exam	6301 Engineering design 1 lec., 2prac. 5 ECTS Exam	-
5303 Basics of scientific research 1 lec., 2prac. 5 ECTS Exam	5301 Planning of experiments 1 lec., 2prac. 5 ECTS Exam	6301 Research practice 5 ECTS Report	-
5507 Master student's research work, including implementation of master's	5508 Master student's research work, including implementation of master's thesis	6510 Master student's research work, including implementation of master's	-

0 Appendix: Programme Learning Outcomes and Curricula

thesi 2 ECTS Graded Credit	3 ECTS Graded Credit	thesi 2 ECTS Graded Credit	
5lec.+12prac.+0 lab.= 17 h./week	5lec.+10prac.+0 lab.= 15 h./week	5lec.+10prac.+0 lab.= 15 h./week	0
6 Exam 1 Master student's research work, including implementation of master's thesis	5 Exam 1 Report 1 Master student's research work, including implementation of master's thesis	5 Exam 1 Report 1 Master student's research work, including implementation of master's thesis	1 Report 1 Master student's research work, including implementation of master's thesis
30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total			
Component by selection 5 ECTS (16,7 %)	Component by selection 20 ECTS (66,7 %)	Component by selection 13 ECTS (43,3 %)	Component by selection 0 ECTS (0 %)

The following **curriculum** is presented for the **PhD Programme in Agroengineering**:

1 semester	2 semester	3 semester	4 semester	5 semester	6 semester
7304 Modern means of mechanization in crop production 1 lec., 2 prac. 5 ECTS Exam	7205 Technical support of precision farming system 7205 Prediction of technological progress and the support of a system of machines in plant 1 lec., 2 prac. 5 ECTS Exam	8300 Research practice 10 ECTS Report	8500 PhD student's research work, incl. doctoral thesis 30 ECTS Graded Credit	9500 PhD student's research work, incl. doctoral thesis 30 ECTS Graded Credit	9500 PhD student's research work, incl. doctoral thesis 18 ECTS Graded Credit
7307 Operational properties of mobile aggregates in crop production 7307 Justification of the machine system in the technology of cultivation of agricultural crops 1 lec., 2prac. 5 ECTS Exam	7200 Pedagogical training 10 ECTS Report	8500 PhD student's research work, incl. doctoral thesis 20 ECTS Graded Credit	-	-	Final attestation 12 ECTS Preparation and defense of a doctoral dissertation

0 Appendix: Programme Learning Outcomes and Curricula

7202 Methods of scientific researches 1 lec., 2 prac. 5 ECTS Exam	7500 PhD student's research work, incl. doctoral thesis 15 ECTS Graded Credit	-	-	-	-
7204 Academic writing 3 prac. 5 ECTS Exam	-	-	-	-	-
7500 PhD student's research work, incl. doctoral thesis 10 ECTS Graded Credit	-	-	-	-	-
3lec.+9prac.+0 lab.= 12 h./week	1 lec.+2 prac.+0 lab.= 3 h./week	0	0	0	0
1 Exam 1 PhD student's research work, incl. doctoral thesis	1 Exam 1 Report 1 PhD student's research work, incl. doctoral thesis	1 report 1 PhD student's research work, incl. doctoral thesis	1 PhD student's research work, incl. doctoral thesis	1 PhD student's research work, incl. doctoral thesis	1 PhD student's research work, incl. doctoral thesis
30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total					
Component by selection 5 ECTS (16,7 %)	Component by selection 5 ECTS (16,7 %)	Component by selection 0 ECTS (0 %)	Component by selection 0 ECTS (0 %)	Component by selection 0 ECTS (0 %)	Component by selection 0 ECTS (0 %)

The following curriculum is presented for the **Bachelor's Degree Programme Food Technology**:

1 semester	2 semester	3 semester	4 semester	5 semester	6 semester	7 semester	8 semester
1101 Kazakh (russian) language 3 prac. 5 ECTS Exam	1104 Kazakh (russian) language 3 prac. 5 ECTS Exam	2113 Labor protection and basics of life safety 2113 Basics of anti- corruption culture 2113 Basics of economics and law 2113 Innovative entrepreneurs hip 1 lec., 2 prac. 5 ECTS Exam	2226 Analytical chemistry 1 lec., 2 lab. 5 ECTS Exam	3227 Biochemistry 1 lec., 2 lab. 5 ECTS Exam	3224 Physico- chemical methods of processing the of dairy products 2 prac. 3224 Technology on drying of grain 1 lec., 1 prac. 3 ECTS Exam	3222 Basics of complex processing of secondary raw materials of animal origin 2 3222 Basics of bioconver- sion of secondary raw materials of plant origin 2 1 lec., 1 prac. 3 ECTS Exam	4304 Internship 6 ECTS Practice report
1102 Foreign language 3 prac. 5 ECTS Exam	1103 Foreign language 3 prac. 5 ECTS Exam	2110 Physical education 2 prac. 2 ECTS Graded Credit	2111 Physical education 2 prac. 2 ECTS Graded Credit	3223 Physico- chemical methods of processing meat products 1 lec., 1 lab. 3223 Technolo- gy on postharvest processing of grain 1 lec., 1 prac. 3 ECTS Exam	3221 Basics of complex processing of secondary raw materials of animal origin 1 3221 Basics of bioconversi- on of secondary raw materials of plant origin 1 1 lec., 1 prac. 3 ECTS Exam	3218 Technochemi- cal control, quality assessment and safety of dairy products 3218 Technochemi- cal control, quality assessment and safety of crop products 2 1 lec., 2 lab. 5 ECTS Exam	4308 Pre diploma practice 2 ECTS Practice report
1112 Informati- on and communi- cation technologi- es 1 lec., 2 lab. 5 ECTS Exam	1109 Physical education 2 prac. 2 ECTS Graded Credit	2105 Philosophy 1 lec. 2 prac. 5 ECTS Exam	2207 Draft execution automation. 2 lab., 1 prac. 5 ECTS Exam	3220 Theoretical foundations of food products technologies 2 2 lec., 2 prac. TOPP 3220 Theoretical basics of processing productions 1 lec., 3 prac. 6 ECTS Exam	3216 Processes and devices of food products 2 3216 Processes and devices of processing industries 2 1 lec., 2 prac. 4 ECTS Exam	4303 Internship 7 ECTS Practice report	4302 Design of food production enterprises 4302 Design of plants for the production of plant products 1 lec., 4 prac. 8 ECTS Exam

0 Appendix: Programme Learning Outcomes and Curricula

1114 History of Kazakhstan 1 lec., 2 prac. 5 ECTS State Exam	1106 Political science and sociology 1 lec., 2 prac. 4 ECTS Exam	2202 Chemistry 2 lec. 2 lab. 6 ECTS Exam	2210 Commodity of food products 2210 Elevator- warehousing 1 lec., 2 prac. 4 ECTS Exam	3208 Equipments for food products 3208 Technological machines and equipment of processing industries 1 lec., 4 prac. 8 ECTS Exam	3217 Technochemical control, quality assessment and safety of meat products 3217 Technochemical control, quality assessment and safety of crop products 1 1 lec., 2 lab. 4 ECTS Exam	3310 The technology of public catering 2 3310 Technology of vegetable oils 2 1 lec., 2 lab. 4 ECTS Exam	4307 Economics and Entrepreneurship 2 lec., 2 prac. 6 ECTS Exam
1108 Physical education 2 prac. 2 ECTS Graded Credit	1107 Cultural studies and psychology 1 lec., 2 prac. 4 ECTS Exam	2205 Applied mechanics 1 lec., 2 prac. 5 ECTS Exam	2219 Theoretical foundations of food products technologies 1 1 lec., 2 prac. ZOR 2219 Grain introductions with fundamentals of plant growing 2 lec., 1 lab. 4 ECTS Exam	3215 Processes and devices of food products 1 3215 Processes and devices of processing industries 1 1 lec., 2 prac. 4 ECTS Exam	3305 Internship 4 ECTS Practice report	3312 Technology of milk and dairy products 2 3312 Technology of bread and pasta products 2 1 lec., 2 lab. 4 ECTS Exam	State exam or writing and defending a thesis (project) 8 ECTS State exam or writing and defending a thesis
1201 Mathematics 1 lec., 2 prac. 5 ECTS	1204 Physics 1 lec., 2 lab. 4 ECTS Exam	2209 Fundamentals of Scientific Research Food products 2209 Service at	2214 Electrical engineering and the basics of electronics 1 lec.,	3213 Standardization, metrology and certification of food	3309 The technology of public catering 1 3309 Technology	3314 Technology of meat and meat products 2 1 lec. 2 lab. 3314	-

0 Appendix: Programme Learning Outcomes and Curricula

Exam		catering establishments 1 lec., 4 lab. 2209 Lifting and transporting equipment and ventilation systems for grain storage and processing enterprises 1 lec., 4 prac. 7 ECTS Exam	1 prac., 1 lab. 2214 Professionally-oriented Foreign Language 3 prac. 4 ECTS Exam	branch 1 lec., 2 prac. 4 ECTS Exam	of vegetable oils 1 1 lec., 2 lab. 4 ECTS Exam	Technology of cereals and feed 1 lec., 2 prac. 4 ECTS Exam	
1203 Descriptive geometry and engineering graphics 1 lec., 1 lab. 5 ECTS Exam	1206 Microbiology 1 lec., 2 lab. 4 ECTS Exam		2306 Internship 6 ECTS Practice report	-	3311 Technology of milk and dairy products 1 3311 Technology of bread and pasta products 1 1 lec., 2 lab. 4 ECTS Exam	4301 Management 1 lec., 1 prac. 3 ECTS Exam	-
-	1211 Educational practice 2 ECTS Practice report		-	-	3313 Technology of meat and meat products 1 1 lec., 2 lab. 3313 Flour technology 1 lec., 2 prac. 4 ECTS Exam	-	-
4 lec.+12 prac.+3 lab.=19 h./week	4 lec.+12 prac.+4 lab.=20 h./week	6 lec.+8 prac.+6 lab.=20 h./week	4 lec.+8 prac.+3 lab.=15 h./week	7 lec.+10 prac.+3 lab.=20 h./week	6 lec.+5 prac.+8 lab.=19 h./week	6 lec.+2 prac.+8 lab.=16 h./week	3 lec.+6 prac.=18 h./week
1 State Exam 6 Exam 1 Graded Credit	7 Exam 1 Graded Credit 1 Practice report	6 Exam 1 Graded Credit	6 Exam 1 Graded Credit 1 Practice report	6 Exam 1 Practice report	7 Exam 1 Practice report	6 Exam 1 Practice report	2 Exam 2 Practice report
30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total							
Component by selection 0 ECTS (0%)	Component by selection 2 ECTS (6.7%)	Component by selection 7 ECTS (23.3%)	Component by selection 14 ECTS (46.7%)	Component by selection 25 ECTS (83.3%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)

The following **curriculum** is presented for the **Master's Degree Programme Food Technology**:

1 semester	2 semester	3 semester	4 semester
5225 Biotechnological bases of food production 5229 Food safety control and quality standards 1 lec., 2 lab. 5 ECTS Exam	5226 Food safety: inspection, sanitation and HACCP 5228 Microbiological methods of food quality control 1 lec., 2 lab. 5 ECTS Exam	6317 Principles of developing recipes for new types of food products 6317 Progress in fruit and vegetable processing 6319 Technical systems for the production of products of deep processing of vegetable raw materials and biofuels 2 lec., 3 prac. 7 ECTS Exam	6308 Research practice 13 ECTS Practice report
5220 Pedagogics of higher school 1 lec., 1 prac. 3 ECTS Exam	5219 Nutritionology 5227 Scientific basis for food production 1 lec., 2 lab. 5 ECTS Exam	6304 Modern technologies for the production of meat and dairy products 6314 Progress in science and technology in the field of grain and oil 6318 Innovative storage technology of processing plant products 1 lec., 1 prac. 5 ECTS Exam	6506 Master student's research work, including implementation of master's thesis 9 ECTS Graded Credit
5221 Psychology of management 1 lec., 2 prac. 5 ECTS Exam	5323 Modern equipment for food production 1 lec., 2 prac. 5 ECTS Exam	6312 Waste-free production technology of meat and dairy products 6320 Promising technologies of deep processing of vegetable raw materials and the production of biofuels 2 lec., 3 prac. 8 ECTS Exam	Design and defense of master's dissertations 8 ECTS Preparation and defense of a master's thesis

0 Appendix: Programme Learning Outcomes and Curricula

5223 Foreign language (professional) 3 prac 5 ECTS Exam	5324 Business planning in the storage and processing of agricultural products 1 lec., 2 prac. 5 ECTS Exam	6313 Methods for assessing the quality of processing products 6316 Progress in the production of animal origin products 6321 Methods for analyzing products of deep processing of vegetable raw materials and biofuels 1 lec., 2 lab. 5 ECTS Exam	-
5230 History and philosophy of science 1 lec., 2 prac. 5 ECTS Exam	5325 Modeling of processes of food production 1 lec., 2 prac. 5 ECTS Exam	6505 Master student's research work, including implementation of master's thesis 5 ECTS Graded Credit	-
5224 Pedagogical training 2 ECTS Practice report	5504 Master student's research work, including implementation of master's thesis 5 ECTS Graded Credit	-	-
5503 Master student's research work, including implementation of master's thesis 5 ECTS Graded Credit	-	-	-
4 lec.+8 prac.+2 lab.=14 h./week 6 Exam 1 Practice report 1 Graded Credit 30 ECTS	5 lec.+6 prac.+4 lab.=15 h./week 5 Exam 1 Graded Credit 30 ECTS	6 lec.+7 prac.+2 lab.=15 h./week 4 Exam 1 Graded Credit 30 ECTS	1 Practice report 1 Graded Credit 30 ECTS
Total			
Component by selection 12 ECTS (40%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)

The following **curriculum** is presented for the **PhD Programme in Food Technology**:

1 semester	2 semester	3 semester	4 semester	5 semester	6 semester
7203 Academic writing 1 lec., 2 prac. 5 ECTS Exam	7202 Pedagogical training 10 ECTS Practice report	8301 Research practice 10 ECTS Practice report	7101 PhD student's research work, incl. doctoral thesis 30 ECTS Graded Credit	7101 PhD student's research work, incl. doctoral thesis 30 ECTS Graded Credit	7101 PhD student's research work, incl. doctoral thesis 18 ECTS Graded Credit
7204 Methods of scientific researches 1 lec., 2 prac. 5 ECTS Exam	7101 PhD student's research work, incl. doctoral thesis 20 ECTS Graded Credit	7101 PhD student's research work, incl. doctoral thesis 20 ECTS Graded Credit			Design and defense of doctoral's dissertations 12 ECTS Preparation and defense of a doctoral dissertation

0 Appendix: Programme Learning Outcomes and Curricula

<p>7205 Theory of food technology</p> <p>7205 The advanced technologies of obtaining of biologically active substances and nutraceuticals of animal and vegetable raw materials 1 lec., 1 prac.</p> <p>3 ECTS Exam</p>	-	-	-	-	-
<p>7304 Methodology of mathematical processing of scientific results</p> <p>7304 Commercialization of innovative technologies 1 lec., 1 prac.</p> <p>3 ECTS Exam</p>	-	-	-	-	-
<p>7201 Scientific basis of combined products creation</p> <p>7201 Scientific aspects of processing plant products 1 lec., 1 prac.</p> <p>3 ECTS Exam</p>	-	-	-	-	-
<p>7303 Nanotechnology in food and processing industries</p> <p>7303 Digital technologies in science and industry</p> <p>7303 Bioengineering technologies 1 lec., 1 prac.</p> <p>3 ECTS Exam</p>	-	-	-	-	-

0 Appendix: Programme Learning Outcomes and Curricula

7302 Resource-saving technologies for food and processing industries 7302 Modern physical and electrophysical methods of food processing 1 lec., 1 prac. 3 ECTS Exam	-	-	-	-	-
7101 PhD student's research work, incl. doctoral thesis 5 ECTS Graded Credit	-	-	-	-	-
7 lec.+9 prac.+0 lab.=16 h./week	-	-	-	-	-
7 Exam 1 Graded Credit	1 Graded Credit 1 Practice report	1 Graded Credit 1 Practice report	1 Graded Credit	1 Graded Credit	1 Graded Credit
30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS
Total					
Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)	Component by selection 30 ECTS (100%)