



ASIIN Seal

Accreditation Report

Master's Degree Programmes

Technology of Food Products (1 year/2 years)

Crop Processing Technology (1 year/2 years)

Technology and Design of Light Industry Products (1 year/2 years)

Technology and Design of Textile Materials (1 year/2 years)

Safety of Non-Food Goods and Products (1 year/2 years)

Provided by

Almaty Technological University

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) ²
Технология продовольственных продуктов	Technology of Food Products (2 years)	ASIIN	---	01, 08
Технология продовольственных продуктов	Technology of Food Products (1 year)	ASIIN	---	01, 08
Технология перерабатывающих производств (по отраслям)	Crop Processing Technology (2 years)	ASIIN	---	01, 08
Технология перерабатывающих производств (по отраслям)	Crop Processing Technology (1 year)	ASIIN	---	01, 08
Технология и конструирование изделий легкой промышленности	Technology and Design of Light Industry Products (2 years)	ASIIN	---	01

¹ ASIIN Seal for degree programmes

² TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 08 - Agriculture, Nutritional Sciences and Landscape Architecture

A About the Accreditation Process

Технология и конструирование изделий легкой промышленности	Technology and Design of Light Industry Products (1 year)	ASIIN	---	01
Технология и проектирование текстильных материалов	Technology and Design of Textile Materials (2 years)	ASIIN	---	01
Технология и проектирование текстильных материалов	Technology and Design of Textile Materials (1 year)	ASIIN	---	01
Безопасность непродовольственных товаров и изделий	Safety of Non-Food Goods and Products (2 years)	ASIIN	---	01
Безопасность непродовольственных товаров и изделий	Safety of Non-Food Goods and Products (1 year)	ASIIN	---	01
Date of the contract: 05.07.2018 Submission of the final version of the self-assessment report: 16.08.2019 Date of the onsite visit: 01./02.10.2019 at: Campus of Almaty Technological University				
Peer panel: Dr. Manfred Grüneberg, Ehrmann AG Prof. Dr. Manfred Hampe, Technical University of Darmstadt Prof. Dr. Wolfgang Müller, Technical University of Berlin Dr. Bakhytkul Abdizhapparova, Auezov South Kazakhstan State University (Shymkent)				

A About the Accreditation Process

Saltanat Bashirova, PhD student, Auezov South Kazakhstan State University (Shymkent)	
Representative of the ASIIN headquarter: Tobias Buse	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines, as of 15.05.2015 ASIIN General Criteria, as of 10.12.2015 Subject-Specific Criteria of Technical Committee 01 – Mechanical Engineering/ Process Engineering, as of 09.12.2011 Subject-Specific Criteria of Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture, as of 27.03.2015	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Технология продовольственных продуктов	Master of Technical Science		7	Full time	---	4 semesters	120 ECTS	once per year 2003
Технология продовольственных продуктов	Master of Technics and Technologies		7	Full time	---	2 semesters	60 ECTS	once per year 2003
Технология перерабатывающих производств	Master of Technical Science		7	Full time	---	4 semesters	120 ECTS	once per year 2003
Технология перерабатывающих производств	Master of Technics and Technologies		7	Full time	---	2 semesters	60 ECTS	once per year 2003
Технология и конструирование изделий легкой промышленности	Master of Technical Science		7	Full time	---	4 semesters	120 ECTS	once per year 2003
Технология и конструирование изделий легкой промышленности	Master of Technics and Technologies		7	Full time	---	2 semesters	60 ECTS	once per year 2003
Технология и проектирование текстильных материалов	Master of Technical Science		7	Full time	---	4 semesters	120 ECTS	once per year 2003

³ EQF = The European Qualifications Framework for lifelong learning

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Технология и проектирование текстильных материалов	Master of Technics and Technologies		7	Full time	---	2 semesters	60 ECTS	once per year 2003
Безопасность непродовольственных товаров и изделий	Master of Technical Science		7	Full time	---	4 semesters	120 ECTS	once per year 2003
Безопасность непродовольственных товаров и изделий	Master of Technics and Technologies		7	Full time	---	2 semesters	60 ECTS	once per year 2003

Almaty Technological University (ATU) does not deliver specific profiles for the ten different Master's degree programmes. The self-assessment report merely contains a very general statement: It is outlined that the main purpose of the Master's degree programmes is determined by the mission of the University. The degree programmes claim to provide quality education at the level of the best universities in the world and aim to preserve and disseminate knowledge. The auditors require ATU to formulate specific profiles for each of the ten different Master's degree programmes.

C Peer 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:

- Study regulations of all degree programmes
- Examination regulations for all degree programmes
- Module handbooks for all degree programmes
- Curricula for all degree programmes
- Diploma supplements for all degree programmes
- Objectives-module matrices for all degree programmes
- Overview about the number of students in the degree programmes
- Self-assessment report
- Objectives-module matrices for the Master's degree programmes which exhibit in which way the subject-specific criteria of Technical Committee 01 - Mechanical Engineering/Process Engineering and the subject-specific criteria of Technical Committee 08 - Agriculture, Nutritional Science and Landscape Architecture are implemented
- Discussions with representatives of faculty management, programme coordinators, students, lecturers and business representatives
- Objectives and learning outcomes for the 1-year and 2-year profiles of the Master's degree programmes Technology and Design of Textile Materials and Safety of Non-Food Goods and Products

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.

Preliminary assessment and analysis of the peers:

The peers take note that the university describes the objectives and learning outcomes of the Master's degree programmes in its diploma supplement:

The graduates of the Master's degree programmes Technology of Food Products (TFP) accordingly acquire the required knowledge, skills and competences to apply methods of experimental research in the field of food technology. They are able to use their theoretical knowledge for the production of high quality food products. Furthermore, the students design new food products based on the simulation of technological processes of production and use mathematical models to solve complex engineering problems. Furthermore, the Master's programme enables graduates to communicate in English at a good scientific level, in written form and verbally.

The graduates of the Master's degree programmes Crop Processing Technology (CPT) are expected to be able to understand and critically evaluate the latest theories and methods of crop processing technology. The students acquire interdisciplinary knowledge from various scientific disciplines and demonstrate managerial skills to apply their knowledge in different work situations. The students gain knowledge of the latest technical solutions and innovative product developments of the processing industry. As a result, the graduates are able to solve scientific, industrial and practical tasks to improve the nutritional value of the processing industry's products. Since they acquire an advanced knowledge of the processing industry's technology, they can improve production efficiency. As a result, the students contribute to the development of high-quality products. Furthermore, the Master's degree programme equips the students with a scientific level of English, in written form and verbally.

The graduates of the Master's degree programmes Technology and Design of Textile Materials (TDTM) have the proficiency to analyse and evaluate problems from the professional field of work. By applying their acquired knowledge, skills and competences, they develop new textile materials, products and technologies. The graduates use modern information technology for the design of new textile materials and products. The Master's degree programme educates them in the latest achievements of science and advanced technology in the production of textile materials and products. The graduates know about the most recent research results and use their knowledge to understand the changing patterns in the properties of textile materials. As a result, they develop new ranges of textiles for various purposes. The degree programme provides the students with the required knowledge to set research objectives and to select the appropriate methods of experimental work as well as to analyse the research results about textile materials and their manufacturing processes. Moreover, the graduates are able to communicate in English at a professional level, in written form and verbally.

The graduates of the Master's degree programmes Technology and Design of Light Industry Products (TDLIP) are proficient in formulating research objectives, selecting experimental methods and presenting research results in reports and public debates. The students obtain the required knowledge to apply information technology and modern computer graphic systems for the design of light industry products in CAD. Since the students analyse the most recent technological achievements in science, they acquire sufficient experience to use innovative technologies for the design of new clothing products. Linked with that, they are aware of the different stages of the innovation process for the creation of new light industry products as well as the methods to search for new ideas. Furthermore, students are able to speak in a foreign language (English or German) for business communication.

The graduates of the Master's degree programmes Safety of Non-Food Goods and Products (SNFGP) are educated to solve problems from their discipline. They are able to manage the quality of non-food products to ensure the reliability of production processes since the students are equipped with the required knowledge, skills and competences to improve the safety and environmental performance of production activities. The graduates have the proficiency to choose effective and safe technologies for textile production and to develop innovative technologies for the production of light industry products. The students learn how to plan, organize and conduct research and apply their acquired knowledge to the design of scientific experiments to create high quality products.

Summary

Each of the subjects is offered as two different study profiles with a study duration of 1 year or 2 years, respectively. During the audit, the university does not provide distinct qualification objectives for the two different profile directions. However, subsequent to the audit, ATU submits distinct qualification objectives for the Master's degree programmes TDTM and SNFGP. These qualification objectives demonstrate different intended learning outcomes for the two profiles with a duration of 1 year and 2 years, respectively. The peers recognize that ATU submits distinct learning outcomes for the two profile directions of these programmes and conclude that the level of the intended qualification profiles in these Master's degree programmes is equivalent to the subject-specific criteria of the ASIIN seal. In summary, the auditors are of the opinion that the subject-specific criteria of Technical Committees 01 and 08 are implemented adequately for the two Master's degree programmes TDLIP and SNFGP.

Nevertheless, the auditors require the institution to define distinct qualification objectives for the 1-year and the 2-year profile of the Master's degree programmes TFP, CPT and TDLIP since these remain unclear. Thus, the peers are currently unable to evaluate whether

the level of the intended qualification profiles in these Master's degree programmes fulfils the subject-specific criteria of Technical Committees 01 and 08. The university has to deliver the corresponding distinct qualification objectives to qualify for the ASIIN seal.

Furthermore, the university has to make the qualification objectives for all Master's degree programmes available for all relevant stakeholders to create greater transparency (see criterion 5.3). In this context, the auditors reason that the English translations of the qualification objectives in the diploma supplements have to be improved to be clearly understandable for external parties, for instance for foreign students. The English translation of the qualification objectives must consist of complete sentences to be clearly understood.

In addition, the auditors recommend to rephrase the learning outcomes of the Master's degree programmes by using Bloom's taxonomy. This taxonomy is a set of three hierarchical models used to classify educational learning objectives into levels of complexity and specificity. These three hierarchical models cover the learning objectives in a cognitive, affective and psychomotor domain.

The degree programmes were designed in response to the demand of the local industry in Kazakhstan. ATU has subcommittees, composed of faculty staff, employers, graduates and trainees, for each Master's degree programme, who work on the continuous development of the programmes. There is a close collaboration between university and industry partners to develop the programmes and to achieve the intended learning outcomes. For instance, ATU cooperates with Kazakh firms in a long-term project about improving the production processes for cashmere and wool in Kazakhstan (see criterion 6). The industry representatives are also members in the board of trustees at ATU, which meets every 3 months. In the board of trustees, the industry peers give feedback to the university as to which projects are interesting for Kazakh companies in the future. Taking into account the overview about the number of students in each degree programme, the peers wonder why the 1-year Master's profile was introduced since the number of students in this profile direction is very low. Therefore, the peers suggest that ATU should abandon the 1-year profile direction if it is not possible to attract more students.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-assessment report
- Module handbooks for the Master's degree programmes
- Curricula for the Master's degree programmes
- Diploma supplements for the Master's degree programmes

- Discussions with representatives of faculty management, programme coordinators and teaching staff

Preliminary assessment and analysis of the peers:

The names of the Master's degree programmes are defined in the corresponding module handbooks, curricula and diploma supplements. The module handbook contains the module descriptions, which include the language of instruction for each module. The peers conclude that the names of the degree programmes reflect the main course language (Kazakh or Russian) adequately. However, the auditors reason that the names only partially reflect the intended aims and learning outcomes. According to the auditors, the university should introduce different names for the 1-year and the 2-year programmes. It is not reasonable to have the same name for both profiles. Since the 1-year Master's profile prepares students for an industry career while the 2-year Master's profile educates students for an academic career, the names should emphasize the respective focus. As a result, it would be possible to distinguish the profiles by their names.

Criterion 1.3 Curriculum

Evidence:

- Module handbooks for all Master's degree programmes
- Curricula for all Master's degree programmes
- Objectives-module matrices for all Master's degree programmes (SAR, p. 163 f.)
- Objectives-module matrices for the Master's degree programmes which exhibit in which way the subject-specific criteria of Technical Committee 01 - Mechanical Engineering/Process Engineering and the subject-specific criteria of Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture are implemented
- Discussions with representatives of faculty management, programme coordinators, students and lecturers
- Self-assessment report

Preliminary assessment and analysis of the peers:

The Master's degree programmes Technology of Food Products (TFP), Crop Processing Technology (CPT), Technology and Design of Light Industry Products (TDLIP), Technology and Design of Textile Materials (TDTM) and Safety of Non-food Goods and Products (SNFGP) are offered in a 1-year profile direction and a 2-year scientific and pedagogical direction.

The 1-year profile has a duration of 2 semesters with 15 weeks per semester while the 2-year profile direction has a duration of 4 semesters with 15 weeks per semester. The profile directions of 1 year and 2 years have the same modules. However, the 1-year profile direction has fewer modules due to the shorter study duration. The 2-year profile direction has more modules about research and pedagogy than the 1-year profile direction. Furthermore, the 1-year profile direction is more practically oriented because it prepares students for the industry (see criterion 1.2). Thus, students can also do an internship in the second and last semester of their study and take courses that teach them managerial skills. In contrast to that, the 2-year profile educates students for a research career (see criterion 1.2). Therefore, the curricula of this profile direction focus more on teaching and research practice in the fourth and last semester of the study. For instance, the students are engaged in research topics about beer production and gluten-free products that are executed as practical projects in the university's laboratories. The two profile directions have in common that they both offer practical research modules in the final semester of the degree programmes, which serve as preparation for the Master's thesis. However, the degree programmes also have basic courses about research work at the beginning and in the middle of the curricula.

The modules in the curricula of the Master's degree programmes consist of basic courses (BC), special courses (SC), deepened specialized knowledge courses (DSKC) and interdisciplinary content courses (IDCC). The curricula for the degree programmes allocate ECTS credits for the educational courses at ATU. However, the curriculum does not state which modules belong to basic courses, special courses, deepened specialized knowledge courses or interdisciplinary content courses. This categorization is merely done by the objective-module matrix, which allocates the modules to the different kinds of courses. In the following paragraphs, the module names from the objective-module matrices are used accordingly.

As demonstrated by the objective-module matrix, the different types of courses educate the Master's students in general cultural competences (GCC), general professional competences (GPC) and professional competencies (PC). For instance, the course *Food Design* in the Master's degree programme TFP teaches all three different competences GCC, GPC and PC. This logic is applicable to the other modules in the degree programmes as well. In the following paragraphs, the curricula for the Master's degree programmes are described:

The first semester of the scientific and pedagogical 2-year direction of the Master's degree programme TFP contains interdisciplinary content courses, such as *History and Philosophy of Science*, *Foreign Language*, *Psychology* and *Pedagogy*, and the basic courses *Mathematical Modelling of Engineering Problems* and *Planning, Experiment Organization and Data Processing*. The second semester includes basic courses, for example *Physicochemical and*

Biochemical Processes in Food Production and special courses, such as *Ensuring Quality of Food Production* and deepened specialized knowledge courses like *Project Management* and *Biotechnology in Food Production*. The third semester includes special courses, for instance *Scientific Basis of Food Production* and deepened specialized knowledge courses, for instance *Nanotechnology in the Food Industry*. The fourth semester is the last semester, which includes the modules *Research Practice* and *Scientific Research Work* to prepare students for the final Master's thesis that has to be finalized in this semester.

The first semester of the 1-year profile direction of the Master's degree programme TFP has the interdisciplinary content courses *Foreign Language, Management* and *Psychology*. Moreover, the first semester contains special courses, such as *Specific Basis of Food Production* and *Innovative Technologies for Processing Food Raw Materials*. In addition to that, there are three deepened knowledge courses, for instance *Specialized Food Products of Animal and Vegetable Origin, Biotechnologies in Food Production* and *Biochemical Processes in Food Production*. The second semester provides the students with the opportunity to do an internship in the module *Internship Practice* and to work on their research work in the module *Experimental Research Work*. Since the second semester is the final semester, the students write the Master's thesis in this semester.

The first semester of the scientific and pedagogical 2-year direction of the Master's degree programme CPT contains interdisciplinary content courses, such as *History and Philosophy of Science, Foreign Language, Psychology* and *Pedagogy*. The special disciplines for instance have *Innovative Technologies for the Storage and Processing of Crop Products, Scientific Bases of Technology of Crop Production with Increased Nutritional Value* and *Resource-saving Technologies of Products of Processing Industries* as modules in the first semester. In the second and third semester, the students can choose the deepened knowledge courses, for instance *Methods for Assessing the Quality and Safety of Plant Products* in the second semester and the course *Physical and Chemical Foundations of Bakery, Macaroni and Confectionary Production* in the third semester. The fourth semester provides the students with the opportunity to choose modules to improve their research and teaching practice. Since the fourth semester is the final semester, the students work on their Master's thesis as well.

The first semester of the 1-year profile direction of the Master's degree programme CPT encompasses similar interdisciplinary content courses as the 2-year profile direction, with the main difference that the 1-year profile direction has a module about *Management*. Besides that, the first semester also contains basic courses, such as *Methods of Research and Innovation in the Field of Processing Industries* and the special course *The Innovative Technology of Storage and Processing of Crop Production* and the deepened knowledge course *The Scientific Bases of Technology of Crop Production with Increased Nutritional*

Value, amongst others. The second semester provides the students with the opportunity to do an internship and to work on their research work. Since the second semester is the final semester, the students finalize their Master's thesis as well.

The first semester of the scientific and pedagogical 2-year direction of the Master's degree programme TDLIP contains the interdisciplinary content courses *History and Philosophy of Science, Foreign Language, Psychology and Pedagogy* and the basic courses, such as *Bases of Design and Special Clothes and Technology for the Preparation of Scientific Documentation*. Furthermore, the second semester offers the special courses *Mathematical Modelling and Protection of Intellectual Property*, amongst others, while the third semester includes the deepened knowledge courses, for instance: *Estimation of Quality and Competition of Sewing Wares* as well as *Perfection Methods for Designing Garments from New Materials*. In addition to that, the students choose the modules *Pedagogical Practice* and *Scientific Research Work*. In the fourth semester, the students have the opportunity to choose a module called *Research Practice*; in addition to that, the students finalize their Master's thesis as well.

The first semester of the 1-year profile direction of the Master's degree programme TDLIP has similar interdisciplinary content courses as the 2-year profile direction. However, the 1-year profile direction has a module about *Management* as well. Furthermore, the first semester also contains basic courses, such as *Automated Planning of Wares of Light Industry*, the special course *Modern Methods of Design of Products of Light Industry* and the deepened knowledge course *Perfection of Methods for Designing Garments from New Materials*, amongst others. The second and last semester provides the students with the opportunity to do an internship and to work on their experimental research. In the second semester, the students finalize their Master's thesis as well.

The first semester of the scientific and pedagogical 2-year profile direction of the Master's degree programme TDTM consists of the interdisciplinary content courses *History and Philosophy of Science, Foreign Language, Psychology and Pedagogy* and the basic courses, such as *Textile Materials for Special Clothes and Technical Purposes and Organization and Planning of Research*. Furthermore, the second semester offers the basic courses *Design of Experiments and Optimization of Textile Production* and *Methods for Predicting Properties of Textile Materials*, as well as the deepened specialized knowledge courses *Nanotechnology in Textiles* and *Quantitative and Qualitative Analysis of Textile Materials*, amongst others. The third semester includes the special courses *Innovative Technologies in Colouring Textiles* and *Computer Technologies of Processes of Production of the Knitted Products*, amongst others. In addition to that, the third semester offers deepened specialized knowledge courses, for instance: *Environmental Problems in Finishing Production* and *De-*

signing Knitwear. In the fourth semester, the students choose the modules *Research Practice* and *Scientific Research Work* since these modules provide the students with the required knowledge to finalize their Master's thesis.

The first semester of the 1-year profile direction of the Master's degree programme TDTM has the interdisciplinary content courses *Foreign Language* and *Psychology* and the basic courses *Information Technology in the Production of Textiles, Management and Organization and Planning of Research*. The special courses *Innovative Technologies of Textile Materials* and *Computer Technologies of Processes of Production of the Knitted Products* as well as the deepened specialized knowledge courses *Nanotechnology in Textiles and Theory and Practice of Textile Finishing Materials with Watersoluble Polymers* are offered in the first semester as well, among other courses. In the second semester, the students select the modules *Internship Practice* and *Experimental Research Work*. The students' experimental research work is connected to the finalization of the Master's thesis during the degree programme.

The first semester of the scientific and pedagogical 2-year direction of the Master's degree programme SNFGP has the interdisciplinary content courses *History and Philosophy of Science, Foreign Language, Psychology, Pedagogy*, basic courses, such as *Textile Materials for Special Clothes and Technical Purposes* as well as special courses, for instance: *Reliability and Safety of Non-Food Items and Products*. The second semester includes basic courses, such as *Planning of Experiment and Optimization of Processes of Production of Textile Goods* and *Ecological Standardization of Textile Materials*, as well as special courses, for example *Modern Problems of Standardization and Metrology, Commodity and Examination of Textiles* and *Merchandise and Safety of Leather Shoe Products*. The third semester includes the deepened specialized knowledge courses *Environment-friendly products, Commodity and Examination of Sewing and Knitted Goods, Theory and Practice of Antimicrobial Textiles* and *Qualification and Quality Management of Textile and Light Industry Products*, amongst others. In the fourth semester, the students focus on the modules *Research Practice* and *Scientific Research Work* since these educate them to write the final Master's thesis.

The first semester of the 1-year profile direction of the Master's degree programme SNFGP includes the interdisciplinary content courses *Foreign Language, Management and Psychology*, basic courses, for example *Ecological Standardization of Textile Material* and *Modern Methods of Research of Structure and Properties of Materials* as well as the special courses *Goods Examination* and *Commodity and Examination of Textiles*. The first semester also comprises deepened specialized knowledge courses, for instance *Nanotechnologies in Production of Textile Goods* and *Technical Regulations on Safety of Children's Goods and Products*. In the second semester, the students choose the modules *Internship Practice* and

Experimental Research Work. In this context, the latter module prepares the students for the final Master's thesis, which has to be written in the second semester as well.

Overall, the peers conclude that the subject-specific criteria of Technical Committee 01 - Mechanical Engineering/Process Engineering and of Technical Committee 08 - Agriculture, Nutritional Sciences and Landscape Architecture are met by the modules in the curriculum. Therefore, the degree programmes qualify for the ASIIN seal. The students are able to achieve the intended learning outcomes of the Master's degree programmes since the module descriptions demonstrate clearly which knowledge, skills and competences are acquired in the modules. As described under criterion 6, the graduates are well accepted on the Kazakh labour market as well since the university delivers meaningful employment statistics for the degree programmes.

Criterion 1.4 Admission requirements

Evidence:

- Order of the Minister of Education and Science of the Republic of Kazakhstan № 600 dated October 31, 2018 (amended on June 14, 2019 № 269)
- Discussions with representatives of faculty management, programme coordinators, students and lecturers
- Self-assessment report

Preliminary assessment and analysis of the peers:

The admission requirements for the Master's degree programmes at ATU are based on the Order of the Minister of Education and Science of the Republic of Kazakhstan № 600 (dated October 31, 2018), as mentioned in the self-assessment report. The applicants for the Master's degree programmes must have a university degree to be able to apply for the Master's education at ATU. This degree has to be attested by a state document. The Master's applicants have to pass a competitive testing procedure to enter the degree programmes. The students have to pass three different tests:

1. a foreign language test, either in English, German or French;
2. a professional test for the respective Master's degree programme;
3. a test in Kazakh or Russian language to determine the readiness for the respective Master's degree programme (to evaluate in which classes the students are allocated since there are classes for Kazakh- and Russian-speaking students).

If Master's applicants prove that they have an international foreign language certificate in accordance with the European Qualifications Framework (EQF), they are exempt from the

foreign language test. Admission to the Master's degree programmes is based on the results of the comprehensive testing procedure. In total, students are able to receive up to 150 points for the tests while they need a minimum of 100 points to be eligible for the Master's education. The students who score the highest number of points are able to enter the Master's degree programmes. About 60% of the applicants fail these entrance tests. Nevertheless, they can retake these entrance tests one year later.

In addition, students with an unrelated Bachelor's degree (i.e. not related to the Master's degree that they apply for) have to pass an additional exam on prerequisites to enter the Master's degree programme since they often lack the required knowledge. Foreign students have to pass a personal interview at ATU. They have to pay a study fee to enter the degree programmes or they receive a scholarship during their studies.

During the audit discussions, the peers also ask the university representatives whether they are able to estimate the expected number of Master's applicants in the upcoming years. However, the ATU representatives cannot give a reliable estimate. Nevertheless, they inform the auditors that there is no limitation of places for the Master's degree programmes. The university has always been able to deal with the number of Master's applicants in recent years. Merely the number of scholarships for foreign Master's applicants is fixed.

Overall, the peers conclude that the admission rules for the Master's degree programmes are binding and transparent as they are defined by governmental regulations. Since there are clear admission requirements, which have to be fulfilled to be eligible for the degree programmes, the peers regard the admission requirements as sufficient to support the students in achieving the learning outcomes.

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

After the audit, ATU presents tables that outline the qualification objectives of each programme split into General Cultural Competences, General Professional Competences and Professional Competences, contrasting the 2-year profile with the 1-year profile. The peers appreciate this depiction, but they point out that identical learning outcomes are described for both profiles of the Master's programmes TDTM and SNFGP, though distinct profiles were made available previously (see above); in fact all profiles appear to be slightly different translations of the versions provided in the self-assessment report, with similarly generic learning outcomes.

ATU also hands in examples of the diploma supplements for the 2-year profiles of the degrees in TFP, TDLIP, TDTM and SNFGP as well as both CPT profiles. The auditors note that the learning outcomes are not as comprehensive as in the above-mentioned tables and still

not expressed in full sentences; furthermore, they cannot judge whether the distinction between the profiles is sufficiently clear as the documents are not available for all options. They stress that a detailed description of the educational objectives of each programme (and profile) must be available for all stakeholders. The criterion is not fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Curricula for the Master's degree programmes
- Module descriptions for the Master's degree programmes
- Regulations on the academic committee and subcommittees on educational programs (Appendix G, self-assessment report)
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, students and lecturers

Preliminary assessment and analysis of the peers:

Modularization

The Master's degree programmes have a duration of 2 years (4 semesters) for the 2-year profile and a duration of 1 year (2 semesters) for the 1-year profile. ATU claims that their programmes are modularized. However, the peers are of the opinion that the module structures at hand are not consistent with European standards.

Firstly, the individual courses in the curriculum do not always have the same names in the module descriptions. For instance, the curriculum of the Master's degree programme TFP (2-year profile) contains the module EM-2, which consists of the courses *Planning, Experiment Organization and Data Processing* and *Barrier Technology in Food Production*. However, the module descriptions have the course *Food Product Design Development* instead of *Barrier Technology in Food Production*. Thus, the peers urge the university to include the same courses in the curriculum and in the module descriptions.

Secondly, the contents of several courses merged into a module are often unrelated. For example, the courses *Project Management* and *Food Products Packaging* belong to module EM-5 in the curriculum of the Master's degree programme TFP (2-year profile) while they

are not thematically linked to one another. Therefore, it is not logical to merge them into a module. Consequently, the peers require ATU to only group courses into a module if they both have a related content.

Thirdly, a module code is not given to the entire module, but to each individual course in the module descriptions. The courses *Microbiology of products of processing industries* (code: MPPP 5207) and *Microbiology of alcoholic and non-alcoholic drinks* (code: MABN 5207) belong to module EM-2 in the curriculum of the Master's degree programme CPT (2-year profile) while they have separate module codes in the module descriptions. Therefore, any given module description within the module handbook does not encompass the entire module but rather an individual course of a module. As such, it appears that disciplines are joint together in the curriculum only to achieve the required number of ECTS after completing both courses. Thus, the auditors argue that ATU has to allocate the same module codes to all courses that form a module.

Overall, to adhere to European standards, and thus ASIIN criteria, the auditors require the university to adapt the module structure of all degree programmes under review to ensure that the same course names are provided in the curriculum and in the module descriptions, that courses of modules are concerted, and that the same module code is given to all courses in a module.

Internships

As already mentioned under criterion 1.3, the 1-year profile direction of the Master's degree programmes offers students the possibility to do an internship in the second semester of their studies. The auditors regard it as very useful that the students gather work experience during their studies and that they are allowed to prolong the internship based on their individual preferences. In general, the internship has a duration of two months.

Furthermore, the university representatives explain that there are internship regulations with rules that have to be fulfilled by the students during the internship. The auditors cannot investigate the document about internship regulations since ATU does not provide it during the on-site visit. The auditors urge ATU to provide this document subsequent to the audit. Additionally, the university explains that the students receive an internship plan and have to write a report of two pages about the internship as well.

The peers inspect the module descriptions of the Master's degree programmes and take note that the university does not provide module descriptions for the internships in the respective curriculum. According to the peers, the university must provide a module description for the students' internship if the internship is part of the curriculum (see criterion 5.1).

Student Mobility

Master students can go abroad during their studies; however, it is not compulsory to do so. In general, students who are interested to study a semester abroad must have good grades, they have to pass an interview for languages, and they need to have a grant. Students without a grant have to find other degree programmes to study abroad. During the audit discussions, the students explain that the competition to study abroad is high since a large number of students applies for few places. The students also confirm that the selection process is fair and transparent. If a student wants to study abroad, the academic mobility centre issues a certificate on the recognition of educational documents or, in case of a refusal, provides a substantiated response in written form. The learning agreements are signed by the students and inform them in advance which courses can be recognized abroad to ensure that all mandatory subjects are chosen. To recognize the qualifications gained from other foreign institutions of higher education, in particular grades, credits and content of modules are taken into consideration.

ATU is a partner of the German Society for International Cooperation (GIZ), the German Academic Exchange Service (DAAD) and the ISEKI-Food Association to promote academic mobility of students. For example, in the Master's degree programme CPT ATU is supported by GIZ to increase academic mobility between ATU and other universities from Central Asia. The peers recognize the university's intent to increase academic mobility among students. However, they cannot identify many students in the degree programmes under review who went abroad for a foreign exchange semester. Only 12 of 250 Master's students went abroad in the previous academic year. Thus, they conclude that the degree of international student exchange in the Master's degree programmes under review is not very high. The peers are aware that it is not easy for the students to receive a grant to finance the study period abroad and understand the reasons for the low degree of international mobility among the students.

Overall, the auditors reason that the possibilities to study abroad are available. ATU issues learning agreements for the students who want to study abroad. However, the peers regret that only few scholarships are offered and that consequently only a small number of students has a chance to really benefit from these opportunities. Therefore, the peers recommend to consider the Erasmus programme of the European Union to offer another possibility to obtain scholarships and to stimulate international mobility in the Master's degree programmes. The peers recommend to increase the number of international exchange programmes to contribute to the vision of ATU to become an internationally recognized university.

Criterion 2.2 Work load and credits
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Evidence:

- Curricula for the Master's degree programmes
- Module descriptions Master's degree programmes
- Self-Assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

ATU has transformed Kazakh credit points into ECTS points to compare the academic performance of students of higher education with other European countries. The curricula demonstrate that ATU allocates weekly classroom hours for lectures, practical lessons, laboratory classes, self-study hours (IWMS) and self-study hours (IWMS) with the teacher. The latter are counselling hours that the students have with their academic advisor. The auditors inspect the weekly classroom hours in the curricula and do not understand why the university separates classes into *laboratory* and *practical* and why ATU does not allocate any classroom hours to laboratory classes. Since the university is not able to give a reasonable explanation for that, the peers require ATU to state the number of weekly student working hours of laboratory and practical classes in the curricula and in the module descriptions.

The university representatives explain that they have recently changed their ECTS-allocation: where before 45 hours would constitute 1 ECTS credit, now 30 hours constitute 1 ECTS credit. The self-assessment report mentions that the maximum student workload amounts to 57 hours per week during the academic year. However, the curricula of the degree programmes demonstrate that some semesters have a weekly student workload of more than 57 hours. For instance, the second semester of the Master's degree programme CPT (2-year profile) has a workload of 60 hours per week. Overall, the self-assessment report and the curricula do not provide a transparent view on the student workload. In addition, the peers reason that the maximum workload of 57 weekly hours is too high since it normally lies between 25 and 30 hours per ECTS credits, and 900 hours per semester or 1800 hours per year, according to European standards. In that connection, the students explain that the workload amounts to approximately 30 hours per week, which is a clear contradiction to the workload of 57 hours, as indicated by the university. The auditors suspect that this contradiction could be attributable to the fact that there is no transparent definition for the length of the academic year either.

Overall, the peers argue that ATU has to record the student workload since they currently do not measure it at all. The university needs to reconsider the approximate calculation for the student workload and start asking the students about their real workload. During the

audit discussions, the peers are not able to obtain a clear understanding of the actual student workload. In this context, the peers urge the university to define the length of the academic year since the peers gain the impression that the university does not have a common understanding about that. The university has to define the length of the academic year to be able to measure the student workload in a consistent way.

Criterion 2.3 Teaching methodology

Evidence:

- Self-assessment report
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The self-assessment report outlines that the applied teaching methods comprise theoretical and informational teaching methods, practical training methods of operation, search and creative teaching methods, methods of independent work by students and control and evaluation methods. The peers obtain a good overview of the different teaching methods utilized by ATU since they are explained in detail in the self-assessment report. The university's academic subcommittees on the development of learning outcomes and their assessment in the areas of training, responsible for the educational programmes, determine the methods of teaching, learning and assessment. Thus, these subcommittees ensure the achievement of the planned learning outcomes and the graduates' development of the required competencies. Besides traditional didactic methods (e.g. lectures, seminars, laboratory work), ATU uses interactive teaching methods in the form of video lectures, computer simulations, analysis of business situations on the basis of a case method and simulation models, business and role-playing games, round tables. Since the university has agreements and collaborations with approximately 200 research institutions, universities and companies, it is able to stay up-to-date to the most recent research topics in the respective academic field. Therefore, the degree programmes encompass group and research projects (with up to three students) as didactic methods as well. The students also have the possibility to do an internship during the course of their study to get practical job experience. The auditors appreciate the high number of practical trainings and projects during the degree programmes, confirmed by the good condition of the laboratories as well (see criterion 4.3). Overall, the peers believe that the various didactic methods adequately support the intended learning outcomes.

Criterion 2.4 Support and assistance

Evidence:

- Self-assessment report

- Discussions with university representatives and students during the audit

Preliminary assessment and analysis of the peers:

The teaching staff of the university present the different Master's degree programmes during an "Open Day", which is a good opportunity for potential future students to get information about the offered programmes and to inspect the facilities of the university. Students can participate in an orientation week before starting their studies at ATU. When commencing the degree programme, first-year students receive a Students' Guideline which contains all relevant information about the educational process of the credit system, structural units of the university, general requirements to the students, their rights and obligations, main provisions of monitoring and evaluation of students' knowledge. The students confirm that the relevant information is available in Russian and Kazakh language, which is very helpful in order to get a full understanding of the degree programmes and their employment opportunities. However, given that ATU aims to become an international university with foreign students, the peers stress that ATU should offer the relevant information in English as well, so that foreign students are able to understand it.

There is an academic advisor for the course of studies, who advises students on their selection of courses. The students select their elective courses and discuss the academic path with their advisor. In addition to that, the academic advisor also supports the students in case of social or personal problems. During the audit discussions, the students confirm that the academic advisors are very helpful and try to assist the students in all matters. For instance, students who suffer from exam anxiety are allowed to retake an exam more frequently than other students. The peers conclude that ATU provides sufficient support and assistance throughout the student life cycle. However, the peers obtain the impression that the support for the students should be structured in a better way. The peers regard it as recommendable to create a document which states all activities that are related to student support and assistance in the different Master's degree programmes.

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

ATU hands in the "Regulation on master student scientific probation courses" after the audit, which defines the framework for research internships and appears to be more relevant for the "research practice" in the curricula of the 2-year profiles than the "productive practice" of the 1-year profiles as it mainly concerns stays at higher education or research institutions. While the "Regulation on the organization of professional practices at ATU", available on the university's website, covers industry placements and teaching practice for PhD candidates, no such document is available for the Master's level. The peers stress that rules

for industrial internships must be set down in writing and made available to all stakeholders. At the very least a module description must be provided (see criterion 5.1).

As ATU does not provide further comment or material, the peers confirm that the modularization needs to be revised: in particular, all courses belonging to a module must be related in content. In this context, attention must be paid to the correct representation in the module handbooks with regard to course names and module codes, see criterion 5.1. The auditors also emphasise that the student workload needs to be both indicated more clearly (including the time frame, i.e. the academic year) and verified.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Overview of Knowledge Control Methods
- Overview of Knowledge Assessment Scale
- Module descriptions for the Master's degree programme
- Self-assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

The module handbook contains the module descriptions, which inform about the form of assessment, the number of exams and the duration of exams in the respective modules. The degree programmes all comprise a thesis, which ensures that students work on a set task independently. The forms of assessment used in the Master's degree programmes are mainly written exams, oral exams and a mix of written and oral exams. The exam questions are open questions. There is an automatic system which selects exam questions (from a catalogue of 500 questions) at three different complexity levels: easy, medium and difficult. The students obtain more points for difficult questions and fewer for easy ones. In general, there are three questions in a written exam. Every student gets a different exam with three questions; one question each at an easy, medium and difficult level. However, all students receive questions about the same topic from the respective course. In a mixed exam, the student writes an exam with a duration of 45 minutes. Subsequently, the oral exam begins by a discussion with the professor. The student has to answer the professor's questions during this discussion. The written exam and the oral exam are evaluated. If the student

makes a mistake in the written exam, he or she can still correct this in the subsequent oral exam.

As already mentioned above, the Master's degree programmes have a catalogue of 500 exam questions available, of which a subset of questions is selected as exam questions. During the audit discussions with the students, the peers find out that the students have access to this catalogue of questions prior to the exam. The peers argue that this practice has to be altered in the future. In connection to that, the peers observe that the degree programmes suffer from grade inflation since the grades in the Master's degree programmes are improving every year. According to the peers, the grade inflation is consistent with the fact that the students have access to the exam questions in advance. Therefore, it is not surprising that the students confirm that the exams are fair. Overall, the peers do not appreciate that the students know possible exam questions in advance. They urge the university to use other methods to prepare students for the exams. ATU has to ensure that possible exam questions are not publicly available to students prior to the exam.

Furthermore, the auditors appreciate that there is a check on plagiarism on the Master's theses in the three different languages English, Russian and Kazakh. The auditors inspect the Master's theses of the degree programmes. According to the peers, the thesis of the 2-year profile contains a good research project which demonstrates international scientific standard. It covers a current, relevant topic and the applied methods are quantitative and on a good level. In contrast to that, the peers reason that the thesis of the 1-year profile rather resembles a report. The peers know that the 1-year profile prepares students for an industry career and is less research-focused. However, they urge the university to ensure that the Master's theses of the 1-year profiles have an academic level that is consistent with level 7 of the EQF.

The peers analyse the academic level of the exams as well. They reason that the exams contain statements, instead of questions, and that the students have to write a short essay to the given statements. In addition to that, the inspected exams do not involve any calculations at all. Therefore, the auditors require the university to improve the academic level of the exams further. The current way of examination does not allow the students to demonstrate an independent way of thinking. The academic level of the exams has to be coherent with level 7 of EQF. Overall, the peers conclude that ATU has to improve the academic level of exams and Master's theses to receive the ASIIN seal.

As mentioned under criterion 1.1 already, the programme coordinators should also apply the method "Constructive Alignment" to the exams. According to the peers, Constructive Alignment links the learning outcomes as formulated using Bloom's taxonomy to the exam questions. Thus, the exam questions and answers reveal whether the students fulfil the

required learning outcomes of the modules or not. ATU should develop a matrix which demonstrates that all intended learning outcomes are met by an exam question. By doing this, learning outcomes that are not tested will become visible. Nevertheless, the auditors regard the current academic level as suitable to prepare the Kazakh students for the requirements of the local industry in Kazakhstan.

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

ATU does not comment on this criterion. The peers confirm their initial assessment.

4. Resources

Criterion 4.1 Staff

Evidence:

- Staff handbook for each of the Master's degree programmes
- Table about teaching staff involved in the realization of the Master's degree programs (p. 83, self-assessment report)
- Table about the number of students in the Master's degree programmes
- Discussions with representatives of faculty management, programme coordinators, teaching staff and students
- Self-assessment report

Preliminary assessment and analysis of the peers:

The peers welcome the staff handbook for each degree programme and verify that the composition of the teaching body is able to ensure that the intended learning outcomes are achieved by the time the degree is completed. ATU aims at employing academic staff with a Doctor of Science degree, candidates for a Doctor of Science, holders of a PhD and teachers from foreign universities. The Master's degree programmes are supported by 17 professors (with a Doctor of Science), 40 Associate Professors (who are candidates for a Doctor of Science), 17 teachers with a PhD and 53 other teachers who are involved in lecturing and other educational tasks, for instance in advising students during their Master's theses and reviewing the students' thesis work. These other teachers are professors, holders of a Doctor of Science, holders of a PhD and specialized experts from the industry. Some of the industry experts work as part-time teachers.

The university conducts a competitive selection procedure to recruit academic staff from other institutions of higher education or from private companies. Based on Kazakh law, the total number of teaching staff is calculated based on the average number of students per teacher 8/1; implying that there is 1 professor to teach 8 students. Analyzing the figures about teaching staff and students in the degree programmes, the peers conclude that the academic teaching staff is sufficient to educate the students. In essence, the tables demonstrate that the number of students is rather low in relation to the number of teachers in the programmes. As already argued under criterion 1.1, the peers suggest to abandon the 1-year profile direction due to the low number of students in the preceding five years.

Criterion 4.2 Staff development

Evidence:

- “Qualification characteristics of faculty members of ATU ATUUMU-KH-5.3-2019-03” (p. 78, self-assessment report)
- Link to the annual international scientific and practical conferences of ATU <https://atu.kz/en/conferences-and-competitions/conferences>
- Discussions with representatives of faculty management, programme coordinators, teaching staff and students
- Table about advanced trainings of teaching staff of the Master’s degree programmes from 2013-2018 (p. 100/ 101, self-assessment report)
- Self-assessment report

Preliminary assessment and analysis of the peers:

The teaching staff in the Master’s degree programmes have the relevant academic education that is required for the specific subjects. All teachers for the Master’s degree programmes are at least holders of a PhD, which is a requirement by the Ministry of Education in Kazakhstan. The university has a detailed document about the qualification characteristics of the teaching staff for the Master’s degree programmes. This document serves as the basis to determine the requirements for the teachers’ professional knowledge and qualifications.

The peers appreciate that ATU regards the development of its staff members as very important. ATU has a training institute, the Institute of Advanced Training and Retraining (IATR), to support the development of the university’s academic staff. There is a number of different opportunities to participate in educational trainings, for instance independent trainings, advanced training courses at the IATR, trainings in specialized training centres and scientific-methodological seminars and conferences. Didactical training is compulsory for young staff members. ATU provides a table that demonstrates the active participation

of the degree programmes' teaching staff in educational trainings in the past years from 2013 to 2018. The table demonstrates that the academic staff are engaged in educational trainings offered by the IATR and by research institutes. More precisely, the teaching staff participate in advanced trainings and research internships at leading research institutes and universities in Kazakhstan and abroad in Russia, Belarus, Bulgaria, the Czech Republic, Italy, Korea, Turkey, England, Hungary, Germany and the United Arab Emirates. Furthermore, the teachers also receive trainings by leading companies. For example, the university has close contacts to leading companies in the Kazakh food industry.

Since the academic staff participate in a large number of trainings abroad at research institutes and universities, there are cooperations with scientists from different countries. ATU is actively involved in research projects and conducts scientific conferences as well, for example the international conference "Innovative developments of the food, light industry and hospitality industry" in 2018. The peers appreciate that the university provides a link with an overview of several scientific conferences that have been held in the Master's degree programmes in the past years. Thus, the peers conclude that academic staff's research and development activities are consistent with the intended academic qualification aimed for by the degree programmes. According to the peers, the level of scientific research supports the students in achieving their required learning outcomes. In essence, the students benefit from the teachers' participation in scientific conferences since the academic staff are more knowledgeable in supporting the numerous student experiments in the faculty's laboratories (see criterion 4.3).

During the audit discussion, the peers recognize that the level of English among the academic staff has further development potential. However, the auditors value the fact that ATU offers ongoing training activities to enhance the teachers' foreign language competences in English. In this context, the auditors know that the achievement of better English skills is a long-term goal. Therefore, they regard the activities of ATU as sufficient and adequate to support this intended goal of offering a higher number of lessons taught in English in the upcoming years.

Criterion 4.3 Funds and equipment
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Evidence:

- Detailed table of funds for each of the Master's degree programmes from 2014 to 2019 (p. 109, self-assessment report)
- Visit of laboratories
- Self-Assessment Report

- Discussions with representatives of faculty management, programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

The university provides a detailed table about the funds for each of the different Master's degree programmes. This table shows the allocation of funds for staff wages, material resources, investments and for the purchase of large equipment from 2014 to 2019. Thus, the peers obtain a good impression of the allocation of the university's funds.

During the audit discussions, the peers question to which degree ATU receives money from students, from the government or from other external parties. The university informs them that 90% of funds stem from the government. The remaining 10% stem from companies or from study fees. In this context, the university representatives explain that the amount of money received by the government depends on the number of graduates that complete the degree programme. For instance, ATU uses the government funds to build student dormitories and a student service centre. In addition to that, the government provides financial support for scholarships and scientific work. For instance, the government funds are available for great scientific achievements by researchers. The funds from the industry are used to develop the university's material resources. In addition to that, there are research projects in cooperation with companies to develop new technologies by exchanging knowledge with the industry.

Given the table with a good overview about the allocation of funds for the Master's degree programmes under review and the discussions during the audit, the peers conclude that ATU has appropriate funds to execute the programmes for the period of accreditation.

The peers visit the laboratories and training centres for all Master's degree programmes and are very impressed with the spaces and the equipment students can utilize. Especially for the practical education, a lot of modern and up-to-date equipment and laboratories are available and are actively used in the Master's degree programmes. For instance, the peers are able to visit the laboratory for bread products, the laboratory for food processing and storage for grain as well as the scientific training centre for fermentation. The peers appreciate that the laboratories are in very good condition. Furthermore, they regard it as very positive that research about beer production and gluten-free food products is conducted in these laboratories. The research about beer production takes place in cooperation with the Kazakh beer brand "Efes" in the scientific training centre, which features a modern beer production machine. Overall, the peers are very impressed with the equipment and the laboratories at ATU and regard them as sufficient to educate the students adequately.

ATU holds a library as well, which offers sufficient learning spaces for students. The university has a number of computer rooms, where students can also use digitally available literature via the internet. The number of computer desks is normally sufficient; only at peak times students have to wait for computers to be available again. The library provides access to online libraries of other universities since ATU pays a fee for this access. The auditors also question whether the students have access to online literature via e.g. Wiley or Springer, since the auditors regard it as very important that the students can read international research articles via these digital libraries as well. The auditors recommend the university to enable access to these digital libraries for students and researchers. In this context, the auditors also recommend to provide a faster internet connection to download online literature in a faster way. The discussion with the students also confirms that they desire a faster internet connection at the campus. Besides, the peers regard the equipment at ATU as very good and appropriate to support the students in achieving their learning outcomes.

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

ATU demonstrates that students can access various digital resources and databases via a number of Russian online literature services. While the peers would welcome it if this access could be extended to online libraries like Wiley's or Springer's, they confirm that the available resources are sufficient to ensure the quality of teaching and learning. Therefore all programmes fulfil the criterion.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions for the Master's degree programmes
- Curricula for the Master's degree programmes
- Objective-module matrices for the Master's degree programmes
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

ATU provides module handbooks for each of the Master's degree programmes. The auditors realize that some module names in the curriculum differ slightly from the module names in the objective-module matrix for the degree programmes. Therefore, the peers

recommend to eliminate this inconsistency to have the same module names in the curricula and in the objective-module matrices.

As mentioned under criterion 2.1 already, the module descriptions have other discrepancies as well. Firstly, the peers notice that some courses listed in the curriculum are not mentioned in the module descriptions. Secondly, the contents of several courses merged into a module often are not related to each other. Thirdly, the module code is not assigned to the entire module, but to the individual course in the module descriptions. As such, the peers demand that ATU delivers revised versions of the curricula and the module descriptions.

Furthermore, ATU has to include a module description for the students' internship in the module handbook of the degree programmes since the internship is part of the curriculum (see criterion 2.1). As outlined under criterion 2.2, the number of weekly student working hours spent in laboratories and classes has to be included in the module descriptions as well.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Diplomas of the Master's degree programmes
- Diploma supplements for the Master's degree programmes
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

The auditors appreciate that after graduation a degree certificate is issued and a diploma supplement is provided for the students in English. However, the peers require the university to submit a digital copy of the graduation certificate for each of the programmes.

ATU issues diploma supplements for each of the Master's degree programmes. They contain detailed information about the structure, the academic level of the degree programmes and about the individual performance of the student. The degree programmes have two profile directions which prepare students for an industry career (1-year profile) and a scientific career (2-year profile). As mentioned under criterion 1, ATU submits distinct qualifications objectives (for each profile direction) for the Master's degree programmes TDTM and SNFGP. However, the distinct qualification objectives for the 1-year and the 2-year profile of the Master's degree programmes TFP, CPT and TDLIP are still missing. Thus, ATU has to formulate distinct learning outcomes for these three Master's degree programmes. More precisely, the peers demand that ATU provides individual diploma supplements for the profile directions of 1 year and 2 years which describe the distinct learning

outcomes of each profile direction, as captured under 4.2 of the diploma supplement. ATU has to change this quickly to allow prospective students to differentiate between the two profile directions. In addition to that, the English translations of the qualification objectives in the provided diploma supplements have to be improved to be clearly understandable for foreign students.

Criterion 5.3 Relevant rules

Evidence:

- Regulations on the Board of Trustees
- Regulations on the Alumni Association of ATU
- Regulations on the Academic Committee and Subcommittees on Educational Programmes
- Regulation on the Monitoring and Evaluation of Educational Achievements of Students
- Regulation on the Practice of Undergraduates and Doctoral PhD
- Regulation on the Organization of Professional Practices of ATU

Preliminary assessment and analysis of the peers:

The peers appreciate that the rights and duties of both the university and students are described as clear and binding statements in rules and regulations. The relevant documents have been provided as appendices to the self-assessment report or as additional supplements. The relevant programme-related information is available in the main course language (Kazakh or Russian) of the Master's degree programme. However, the university still has to submit a document about internship regulations since it is not available during the on-site visit (see criterion 2.1).

The auditors require the university to publish all relevant study documents (examination regulations, internship regulations, module handbooks, curricula) on the website to ensure that students have access to these documents. Additionally, the auditors have not been able to find these documents in English on ATU's website and thus recommend that all relevant information about the degree programmes should be publicly accessible on the website in English as well.

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

ATU hands in an English translation of the “Regulation on master student scientific probation courses” after the audit, which appears to cover internships at research institutions but is not sufficient for industry internships (see criterion 2.1).

ATU furthermore presents Diploma supplements for the 2-year profiles, but only for a single 1-year profile (CPT). Thus the peers cannot judge whether the distinction between the two profiles is implemented sufficiently.

The auditors appreciate that ATU has made information concerning the degrees available online via the system “Univer”, including curricula, timetables and calendars, most module handbooks and documents such as the examination regulation and QMS policy (in English translations); at the time of the peers’ final assessment, the module handbook for the programme SNFGP is not available online in English. The peers welcome the steps that ATU has already taken and recommend to expand and improve this section further.

The peers confirm that the module handbooks need to be reviewed with regard to module and course names, which should match those in the curricula and objectives-module matrices. The handbooks should contain module rather than course descriptions. For the laboratory and practical courses, missing information on the workload must be supplied. A module description for the internship must be added as well.

The auditors conclude that the criterion is not fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Discussions with representatives of faculty management, programme coordinators, students, lecturers and business representatives
- Self-assessment report
- Table about the positioning of graduates in the labour market (p. 122, self-assessment report)
- Table about the academic progress of students (p. 121, self-assessment report)

Preliminary assessment and analysis of the peers:

The peers understand that ATU has a quality management system which consists of a package of internal actions and external assessment procedures designed to enhance the quality of the Master's degree programmes. The quality management system covers elements of internal quality measures including student, graduate and employer feedback mechanisms. Additionally, external expertise is provided by the professional community and employers. The effectiveness of measures to improve the quality of the study programmes is confirmed by quantitative and qualitative indicators of student performance, the number of employed graduates and feedback from students, graduates and employers.

The main tool of the quality management system are the student evaluations that are executed at the end of each semester. The student surveys are investigated by the council for quality management. If a certain professor's teaching receives a bad evaluation, the council discusses these problems. This council can conduct disciplinary measures against the professor to improve the teaching quality. The council will check this professor's classes to decide whether the professor is able to improve his or her teaching quality.

The student surveys ask for the student workload hours as well. The peers pose specific questions about the student workload since the peers regard the workload of 57 hours per week (as indicated in the self-assessment report) as too high. During the audit discussions, the auditors detect a clear mismatch since the students inform the auditors about a different workload than the persons responsible for the degree programmes. For instance, the university representatives inform that the workload of 57 hours per week includes 24 hours in contact with teachers whereas the students indicate that there are only 30 hours per week (including 3 to 8 weekly contact hours with teachers). Due to this large discrepancy of workload hours, the peers reason that ATU does not measure student workload at all. Consequently, they require the university to start asking the students about their real workload since the current assumption does not correspond to the real workload (see criterion 2.2).

Moreover, the auditors also ask about the involvement of students in the quality management system of ATU. They regard it as very positive that the council for quality management consists of professors and students who can suggest improvements for the degree programmes. In addition to that, the student members of the council meet once a year with the rector to recommend improvements that contribute to the development of the curricula. The peers also appreciate that the employers participate in the quality assurance process. Each semester there is a meeting of university representatives with industry representatives, who get the opportunity to give recommendations for the further development of the curricula (see criterion 1.1).

Furthermore, there are regulations for the supervision of students who write their Master's thesis. The supervisor is required to do research in the respective academic field and must have substantial work experience in this field. ATU has a portfolio of supervisors who are eligible for Master's theses. The peers ask specifically how the university deals with plagiarism. The university representatives inform that ATU has a software programme that conducts a test on plagiarism for all submitted Master's theses. The students receive a certification that documents the result of the plagiarism check.

As mentioned under criterion 2.1, international student mobility in the Master's degree programmes could be further increased. While there is a competitive selection process and binding learning agreements are offered by the university, the number of students who study abroad is very low. Thus, the peers give the recommendation to use the Erasmus programme of the European Union as a chance to offer students more opportunities to obtain scholarships for a study abroad semester.

The auditors appreciate that the university provides data about the graduates' employability in Kazakhstan. The data demonstrate that their qualification profile is well accepted by the labour market in Kazakhstan. There is a great number of companies in Kazakhstan that requires specialized graduates in the business areas of the respective degree programmes. The vast majority of graduates works for small businesses while the minority is employed by medium and large companies.

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

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as fulfilled. They stress that the student workload must be measured, as discussed under criterion 2.2, in order to verify the credit hour system.

D 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:

1. Proof that study documents are available to external parties (e.g. accessible via a website);
2. Profiles for each of the Master's Degree programmes with clear program objectives/learning outcomes (for the 1-year and 2-year profiles);

3. An Improved English translation of the qualification objectives in the diploma supplements of the Master's degree programme (for the 1-year and 2-year profiles);
4. The number of incoming students for each degree programme for the recent five years from 2013 to 2018 or 2019 (for the 1-year and 2-year profiles), and a cohort progression analysis of the course of the study duration;
5. An English document with relevant internship regulations.

E Comment of the Higher Education Institution (05.02.2020)

The institution provided a detailed statement as well as the following additional documents:

- A link under which study documents such as regulations, curricula, calendars and timetables are publicly available;
- Distinct descriptions of the qualification objectives for all study programmes;
- Six examples of diploma supplements;
- Tables listing the number of students in each programme and profile between 2013 and 2020;
- Links and login data for various online libraries;
- An English translation of the "Regulation on master student scientific probation courses".

F Summary: Peer recommendations (17.05.2020)

Taking into account the additional information and the comments given by 17.05.2020 the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ma Technology of Food Products (2 years)	With requirements	-	30.09.2025
Ma Technology of Food Products (1 year)	With requirements	-	30.09.2025
Ma Crop Processing Technology (2 years)	With requirements	-	30.09.2025
Ma Crop Processing Technology (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Light Industry Products (2 years)	With requirements	-	30.09.2025
Ma Technology and Design of Light Industry Products (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Textile Materials (2 years)	With requirements	-	30.09.2025
Ma Technology and Design of Textile Materials (1 year)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (2 years)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (1 year)	With requirements	-	30.09.2025

Requirements

For all degree programmes

- A 1. (ASIIN 1.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.
- A 2. (ASIIN 2.1/5.1) Add the module description of the internship to the module handbook.
- A 3. (ASIIN 2.1) Introduce a concept of modularization that is consistent with the standards of the European Higher Education Area.
- A 4. (ASIIN 2.2) Establish a binding definition of the length of the academic year.
- A 5. (ASIIN 2.2) Ensure that the number of ECTS credits and the student workload are consistent.
- A 6. (ASIIN 2.2/5.1) Indicate the number of student working hours for laboratory and for practical classes.
- A 7. (ASIIN 3) Ensure that exam questions are not accessible to students prior to the exam.
- A 8. (ASIIN 5.2) Ensure that the diploma supplement contains detailed information about the educational objectives and the intended learning outcomes.

For all 1-year degree programmes

- A 9. (ASIIN 3) Ensure that the exams and the Master's theses correspond to EQF level 7.

For the Master's degree programmes Technology of Food Products, Crop Processing Technology, Technology and Design of Light Industry Products

- A 10. (ASIIN 1.1) Draft distinct learning outcomes for the 1-year and 2-year profiles.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.2) It is recommended to introduce names for the degree programmes that better reflect the intended qualifications profile and learning outcomes.
- E 2. (ASIIN 1.3/3) It is recommended to use Bloom's taxonomy to redefine the learning outcomes.
- E 3. (ASIIN 2.1) It is recommended to match the course names in the module descriptions to the curricula.

- E 4. (ASIIN 3.1) It is recommended to improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.
- E 5. (ASIIN 2.4) It is recommended to provide a concept for student support and assistance.
- E 6. (ASIIN 4.3) It is recommended to provide a faster internet connection.
- E 7. (ASIIN 4.3) It is recommended to give students online access to international research journals.
- E 8. (ASIIN 5.3) It is recommended to make all information concerning the degree available to the students in Russian, Kazakh and English.

G Comment of the Technical Committees

Technical Committee 01 – Mechanical Engineering/Process Engineering (10.06.2020)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee is concerned that exams in the 1-year profiles are not sufficient to test Master's level skills and competences. They note, however, that the peers considered both the teaching and the laboratory equipment adequate, so that only the examinations need revision, rather than the curricula or the infrastructure. Taking the low numbers of students into account, the Technical Committee does not expect that new written exams and theses can be provided in time to fulfil the requirements; a concept outlining suitable forms of examinations and possible questions and problems for theses appears more realistic, so a different wording is suggested. The Technical Committee does not share the peers' view that exam questions must not be made available to students in advance, but they do recommend finding different ways to support students' revision.

The Technical Committee 01 – Mechanical Engineering/Process Engineering recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ma Technology of Food Products (2 years)	With requirements	-	30.09.2025
Ma Technology of Food Products (1 year)	With requirements	-	30.09.2025
Ma Crop Processing Technology (2 years)	With requirements	-	30.09.2025
Ma Crop Processing Technology (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Light Industry Products (2 years)	With requirements	-	30.09.2025

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ma Technology and Design of Light Industry Products (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Textile Materials (2 years)	With requirements	-	30.09.2025
Ma Technology and Design of Textile Materials (1 year)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (2 years)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (1 year)	With requirements	-	30.09.2025

Requirements

For all degree programmes

- A 1. (ASIIN 1.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.
- A 2. (ASIIN 2.1/5.1) Add the module description of the internship to the module handbook.
- A 3. (ASIIN 2.1) Introduce a concept of modularization that is consistent with the standards of the European Higher Education Area.
- A 4. (ASIIN 2.2) Establish a binding definition of the length of the academic year.
- A 5. (ASIIN 2.2) Ensure that the number of ECTS credits and the student workload are consistent.
- A 6. (ASIIN 2.2/5.1) Indicate the number of student working hours for laboratory and for practical classes.
- A 7. (ASIIN 5.2) Ensure that the diploma supplement contains detailed information about the educational objectives and the intended learning outcomes.

For all 1-year degree programmes

A 8. (ASIIN 3) Provide a concept that demonstrates how exams and Master's theses are to achieve EQF level 7.

For the Master's degree programmes Technology of Food Products, Crop Processing Technology, Technology and Design of Light Industry Products

A 9. (ASIIN 1.1) Draft distinct learning outcomes for the 1-year and 2-year profiles.

Recommendations

For all degree programmes

E 1. (ASIIN 1.2) It is recommended to introduce names for the degree programmes that better reflect the intended qualifications profile and learning outcomes.

E 2. (ASIIN 1.3/3) It is recommended to use Bloom's taxonomy to redefine the learning outcomes.

E 3. (ASIIN 2.1) It is recommended to match the course names in the module descriptions to the curricula.

E 4. (ASIIN 3.1) It is recommended to improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.

E 5. (ASIIN 3) It is recommended to use other methods to prepare students for exams.

E 6. (ASIIN 2.4) It is recommended to provide a concept for student support and assistance.

E 7. (ASIIN 4.3) It is recommended to provide a faster internet connection.

E 8. (ASIIN 4.3) It is recommended to give students online access to international research journals.

E 9. (ASIIN 5.3) It is recommended to make all information concerning the degree available to the students in Russian, Kazakh and English.

Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture (17.06.2020)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee agrees with the peers' assessment.

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

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ma Technology of Food Products (2 years)	With requirements	-	30.09.2025
Ma Technology of Food Products (1 year)	With requirements	-	30.09.2025
Ma Crop Processing Technology (2 years)	With requirements	-	30.09.2025
Ma Crop Processing Technology (1 year)	With requirements	-	30.09.2025

H Decision of the Accreditation Commission (26.06.2020)

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

The Accreditation Commission agrees with the peers' assessment. In particular, they decide to keep the requirement concerning students' exam preparation (A7), demanding that questions must not be made available in advance. They merely change the wording of requirement A9, stressing that the academic level of exams in the 1-year programmes needs to be substantiated.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ma Technology of Food Products (2 years)	With requirements	-	30.09.2025
Ma Technology of Food Products (1 year)	With requirements	-	30.09.2025
Ma Crop Processing Technology (2 years)	With requirements	-	30.09.2025
Ma Crop Processing Technology (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Light Industry Products (2 years)	With requirements	-	30.09.2025
Ma Technology and Design of Light Industry Products (1 year)	With requirements	-	30.09.2025
Ma Technology and Design of Textile Materials (2 years)	With requirements	-	30.09.2025

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ma Technology and Design of Textile Materials (1 year)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (2 years)	With requirements	-	30.09.2025
Ma Safety of Non-Food Goods and Products (1 year)	With requirements	-	30.09.2025

Requirements

For all degree programmes

- A 1. (ASIIN 1.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.
- A 2. (ASIIN 2.1/5.1) Add the module description of the internship to the module handbook.
- A 3. (ASIIN 2.1) Introduce a concept of modularization that is consistent with the standards of the European Higher Education Area.
- A 4. (ASIIN 2.2) Establish a binding definition of the length of the academic year.
- A 5. (ASIIN 2.2) Ensure that the number of ECTS credits and the student workload are consistent.
- A 6. (ASIIN 2.2/5.1) Indicate the number of student working hours for laboratory and for practical classes.
- A 7. (ASIIN 3) Ensure that exam questions are not accessible to students prior to the exam.
- A 8. (ASIIN 5.2) Ensure that the diploma supplement contains detailed information about the educational objectives and the intended learning outcomes.

For all 1-year degree programmes

- A 9. (ASIIN 3) Provide evidence that the exams and the Master's theses correspond to EQF level 7.

For the Master's degree programmes Technology of Food Products, Crop Processing Technology, Technology and Design of Light Industry Products

A 10. (ASIIN 1.1) Draft distinct learning outcomes for the 1-year and 2-year profiles.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.2) It is recommended to introduce names for the degree programmes that better reflect the intended qualifications profile and learning outcomes.
- E 2. (ASIIN 1.3/3) It is recommended to use Bloom's taxonomy to redefine the learning outcomes.
- E 3. (ASIIN 2.1) It is recommended to match the course names in the module descriptions to the curricula.
- E 4. (ASIIN 3.1) It is recommended to improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.
- E 5. (ASIIN 2.4) It is recommended to provide a concept for student support and assistance.
- E 6. (ASIIN 4.3) It is recommended to provide a faster internet connection.
- E 7. (ASIIN 4.3) It is recommended to give students online access to international research journals.
- E 8. (ASIIN 5.3) It is recommended to make all information concerning the degree available to the students in Russian, Kazakh and English.

Appendix: Programme Learning Outcomes and Curricula

The following figures display the educational objectives and curricula of all degree programmes:

EP Ma "Technology of food products" – 2 years of study	
The purpose of the EP Ma "Technology of food products" is to prepare masters with a high level of professional culture, who are able to formulate and solve modern scientific and practical problems in the field of food production, teach in universities, specialized colleges, successfully carry out research and management activities in various industries and organizations of Food Industry.	
Competence codes	Competency statement
General cultural competences GCC	
GCC 1	Demonstrates knowledge of the main stages of the formation and development of science and world philosophical thought; understanding of professional and social need of own scientific work
GCC 2	Demonstrates the ability for written and oral professional communication in one of the foreign languages
GCC 3	Applies knowledge of the methodological foundations of the pedagogy of higher education and vocational education in the implementation of the tasks of innovative educational policy
GCC 4	Applies knowledge of psychological components for the successful implementation of management activities and self-improvement.
GCC 5	Demonstrates a commitment to continuous personal development and professional development
General Professional Competences GPC	
GPC 1	Applies knowledge of methodology and methods of experimental research in scientific activities and to create high-quality food.
GPC 2	Applies the methods of mathematical modeling, analysis and experimental research in scientific activities
GPC 3	Represents the results of research in the form of reports, abstracts, articles
GPC 4	Uses regulatory documentation and quality assurance and food safety systems to produce high-quality food.
GPC 5	Applies knowledge of physicochemical and biochemical processes occurring during the processing of raw materials into food products during their production
GPC 6	Assess and manage hazards that significantly affect food safety based on risk analysis and critical production control points
Professional competencies PC	
PC 1	Discusses the problems of the current state of the food industry and catering.
PC 2	Applies the methodology of food technology development in practice
PC 3	Examines the quality and safety of food using modern instruments, software, quality management systems
PC 4	Designs new food products based on modeling biochemical, physicochemical, microbiological, biotechnological, rheological processes occurring during their production.
PC 5	Develops regulatory documentation for new food products
PC 6	Uses knowledge of the latest innovative food product development, technical solutions and equipment in professional activities

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CURRICULUM

Master's degree on specialty of
6M072700 - TECHNOLOGY OF FOOD PRODUCTION

Degree - Master of Technical Sciences
Period of education – 2 years

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
1 semester								
HPhS 5201	History and philosophy of science	90	3	1	1		1	3
FL 5202	Foreign language	90	3		2		1	3
Ped 5203	Pedagogy	90	3	1	1		1	3
Psy 5204	Psychology	90	3	1	1		1	3
EM-1	1. Mathematical modeling of engineering tasks 2. Modeling of technological processes	150	5	2	1		1,5	5,5
EM-2	1. Planning, experiment organization and data processing 2. Barrier technology in food production	150	5	1	2		1,5	5,5
NIR-1	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	240	8				1	15

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	Total for 1st semester	900	30	6	8	0	8	38
2 semester								
EM-3	1. Physico-chemical and biochemical processes in food production 2. Methods of research of food raw materials and products	150	5	2	1		1,5	5,5
EM-4	1. Ensuring quality of food production 2. Product quality management	150	5	1	2		1,5	5,5
EM-5	1. Project management 2. Food Products Packaging	150	5	2	1		1,5	5,5
EM-6	1. Biotechnology in food production 2. Biochemical processes in food production	150	5	2	1		1,5	5,5
PP	Pedagogical practice	90	3				1	5
NIR-2	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	210	7				1	13
	Total for 2nd semester	900	30	7	5	0	8	40
3 semester								
SBFP 5301	Scientific basis of food production	90	3	1	1		1	3
EM-7	1. Functional and specialized food technology 2. Specialized food products of animal and vegetable origin	150	5	2	1		1,5	5,5
EM-8	1. Nanotechnology in the food industry 2. Artificial food products	150	5	2	1		1,5	5,5
EM-9	1. Technology of food bioproducts 2. Nutritional supplements	150	5	1	2		1,5	5,5
EM-10	1. Innovative technology and	210	7	3		2	2	7

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWNIS with teacher	IWNIS
	technology in the food industry 2. Innovative technologies for processing food raw materials							
NIR-3	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	150	5				1	9
Total for 3rd semester		900	30	9	5	2	8,5	35,5
4 semester								
RP	Research practice	360	12				1	15
NIR-4	Scientific Research Work of Master student including the master dissertation	90	3				1	21
CE	Complex examination	450	15				1	21
	Formalization and the Master thesis defense							
Total for 4th semester		900	30	0	0	0	3	57,0
Total		3600	120	22	18	2	27,5	170,5

Vice-rector for Science and Innovations

Bskeldiev B.A.

Head of Postgraduate Education

Koshberbaeva L.M.

Head of department

Tayeva A.M.

The purpose of the EP Ma "Technology of food products" - training masters with a high level of professional culture, able to solve modern practical problems in the field of food production, successfully carry out management activities at various food industry enterprises	
Competency statement	Competency statement
General Cultural Competences GCC	
GCC 1	Demonstrates managerial skills and orientates in various work situations
GCC 2	Demonstrates the ability for written and oral professional communication in one of the foreign languages
GCC 3	Applies knowledge of psychology in practice, knows how to transfer to colleagues the knowledge necessary for professional activity
GCC 4	Demonstrates a commitment to continuous personal development and professional development
General Professional Competences GPC	
GPC 1	Applies knowledge of biochemical processes in food production
GPC 2	Uses regulatory documentation and quality assurance and food safety systems to produce high-quality food
GPC 3	Assess and manage hazards that significantly affect food safety based on risk analysis and critical production control points
Professional Competencies PC	
PC 1	Applies deep theoretical knowledge to produce quality food
PC 2	Examines the quality and safety of food using modern instruments, software, quality management systems
PC 3	Demonstrates knowledge of food production biotechnology and biotechnological methods of obtaining nutrients
PC 4	Uses knowledge of innovative food and equipment development in professional activities

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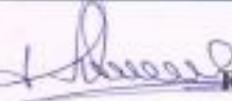
CURRICULUM

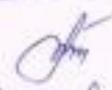
Master's degree on specialty of
6M072700 - TECHNOLOGY OF FOOD PRODUCTION

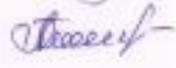
Degree - Master of engineering and technology
Period of education – 1 year

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
I semester								
FL 5201	Foreign language	90	3		2		1	3
Man 5202	Management	60	2	1	1		1	3
Psy 5203	Psychology	90	3	1	1		1	3
SBFP 5204	Scientific basis of food production	60	2	1	1		1	3
EM-1	1. Innovative technology and technology in the food industry 2. Innovative technologies for processing food raw materials	150	5	1	2		1,5	5,5
EM-2	1. Functional and specialized food technology	150	5	1	2		1,5	5,5

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	2. Specialized food products of animal and vegetable origin							
EM-3	1. Biotechnology in food production 2. Biochemical processes in food production	150	5	1	2		1,5	5,5
EM-4	1. Ensuring quality of food production 2. Product quality management	150	5	1	2		1,5	5,5
Total for 1st semester		900	30	7	13		10	34
2 semester								
IP	Internship practice	150	5				1	5
NIR-1	Experimental Research Work of Master student including the master Project	360	12				1	27
CE	Complex examination	390	13				1	25
	Formalization and the Master thesis defense							
Total for 2nd semester		900	30				3	57
Total		1800	60	7	13		13	91

Vice-rector for Science and Innovations  Bekeldiev B.A.

Head of Postgraduate Education  Koshbaeva L.M.

Head of department  Tayeva A.M.

EP Ma "Crop Processing Technology" (scientific and pedagogical direction) - 2 years of study	
The purpose of the EP Ma "Crop Processing Technology" is to prepare scientific, scientific and pedagogical personnel of the new formation, who are able to formulate and solve modern scientific and practical problems at the intersection of science, teach in universities, develop breakthrough technologies, successfully carry out research and management activities in various industries and processing industry organizations	
Competency statement	Competency statement
General cultural competences GCC	
GCC 1	Demonstrates knowledge of modern actual methodical, methodological and philosophical problems of natural and social sciences and humanities, as well as special branches of scientific knowledge in accordance with the chosen specialization
GCC 2	Knows social and ethical values based on public opinion, traditions, customs, social norms and focus on them in their professional activities.
GCC 3	Demonstrates knowledge in maintaining constructive interaction in the process of interpersonal and business communication, freely use a foreign language
GCC 4	Knows about the processes and phenomena occurring in living and inanimate

	nature, the possibilities of modern scientific methods of knowledge of nature
GCC 5	Demonstrates a steady, conscious and positive attitude towards profession, his chosen field of activity, striving for continuous personal and professional improvement and development of intellectual potential
General Professional Competences GPC	
GPC 1	Knows chemical, physico-chemical, biochemical, microbiological and colloidal processes in the production of products of processing industries
GPC 2	Has the skills to demonstrate knowledge of priority technologies for processing, storage and processing of raw materials for processing industries; identify the main innovative directions of development of engineering and technology
GPC 3	Acquisition of the skills of organizing and conducting scientific biotechnological research, obtaining the necessary groundwork for continuing research in doctoral studies
GPC 4	Able to use regulatory documents and systems for ensuring the quality and safety of products of processing industries on the principles of ISO and HACCP
GPC 5	Competent in statistical methods of processing experimental data for the analysis of technological processes in the production of various types of products of processing industries
Professional competencies PC	
PC 1	Has the ability to analyze on the basis of experimental data to draw appropriate conclusions and recommendations for their use in industry
PC 2	Owens the methods of technical and economic analysis of production with a view to its rationalization, optimization and renovation, as well as methods of environmental support of production and engineering protection of the environment
PC 3	Able to explore the quality and safety of products of processing industries using modern instruments, software, innovative technologies
PC 4	Owens methods of modeling, forecasting and design, as well as methods of research and testing necessary to create new intellectual values and tangible products
PC 5	Able to find the optimal solution when creating products of processing industries taking into account the requirements of quality, cost, deadlines, competitiveness and safety

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CURRICULUM

Master's degree on specialty of
6M072800 - -CROP PROCESSING TECHNOLOGY
(for branches of industry)

Degree - Master of Technical Sciences
Period of education – 2 years

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
I semester								
HPhS 5201	History and philosophy of science	90	3	1	1		1	3
FL 5202	Foreign language	90	3		2		1	3
Ped 5203	Pedagogy	90	3	1	1		1	3
Psy 5204	Psychology	90	3	1	1		1	3
ITSPCP 5301	Innovative technologies for the storage and processing of crop products	90	3	1	1		1	3
EM-1	1. The scientific bases of technology of crop production with increased nutritional value 2. Scientific bases of technology of drinks with increased nutrition value and firmness	180	6	2	2		2	6
NIR-1	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	270	9				1	17
Total for Ist semester		900	30	6	8	0	8	38

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	TW/MIS with teacher	TW/MIS
2 semester								
EM-2	1. Microbiology of products of processing industries 2. Microbiology of alcoholic and non-alcoholic of drinks	180	6	2	2		2	6
EM-3	1. Scientific basis of ion-ozone technology of processing industries 2. Innovative technologies of fermentative industries and winemaking	180	6	2	2		2	6
EM-4	1. Scientific foundations of food production 2. Basics of scientific research in the technology of fermentative industries	180	6	2	2		2	6
EM-5	1. Methods for assessing the quality and safety of plant products 2. The quality and safety of fermentation products	180	6	2	2		2	6
NIR-2	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	180	6				1	11
Total for 2nd semester		900	30	8	8	0	9	35
3 semester								
EM-6	1. Physical and chemical foundations of bakery, macaroni and confectionery production 2. Modeling of technological processes	180	6	2	2		2	6
EM-7	1. Innovative planning of scientific developments in the food industry 2. Resource-saving technologies	180	6	2	2		2	6

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	of production of plant growing							
EM-8	1. Innovative technologies of production of mixed fodders 2. Industrial production of mixed fodders	180	6	2	2		2	6
PP	Pedagogical practice	90	3				1	5
NIR-3	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	270	9				1	17
Total for 3rd semester		900	30	6	6	0	8	40
4 semester								
RP	Research practice	360	12				1	23
NIR-4	Scientific Research Work of Master student including the master dissertation	90	3				1	15
CE	Complex examination	450	15				1	19
	Formalization and the Master thesis defense							
Total for 4th semester		900	30	0	0	0	3	57
Total		3600	120	20	22	0	28	170

Vice-rector for Science and Innovations

Bskeldiev B.A.

Head of Postgraduate Education

Koshbaeva L.M.

Head of department

Zhiyenbayeva S.T.

EP Ma "Crop Processing Technology " (Profile direction) - 1 year of study	
The purpose of the EP Ma "Crop Processing Technology" - management training, owning modern information technologies for the industries of processing industries with in-depth training.	
Competence codes	Competency statement
Common cultural competencies CCC	
GCC 1	Capable of written and oral professional communication in one of the foreign languages
GCC 2	Demonstrates knowledge of basic socio-psychological problems of management and ways to solve them.
GCC 3	Has skills in interpersonal and intergroup communication management techniques.
GCC 4	Knows about the latest management development trends in modern conditions
General professional competence of the EP	
GPC 1	Knows about the basic structural elements of research work, the development of
	abilities to define them, the consolidation of the skills of independent research work.
GPC 2	Able to develop an innovative product, formulations, technological regimes, technical conditions
GPC 3	Competent in the selection of rational technology of processing of secondary raw materials to obtain from them food raw materials and feed products
GPC 4	Has the skills to demonstrate knowledge of priority technologies for processing, storage and processing of raw materials for processing industries; identify the main innovative directions of development of engineering and technology
Professional competencies PC	
PC 1	Demonstrates knowledge of the theoretical foundations of the production of functional and specialized products of processing industries
PC 2	Able to solve scientific, industrial and practical tasks to improve the nutritional value of products of processing industries
PC 3	Applies advanced knowledge of the technology of processing industries to improve production efficiency and the production of high-quality safe products
PC 4	Able to implement in practice innovative technologies: the results of research and development in the form of new improved food products, new types of raw materials, new forms of organization and management of innovations.

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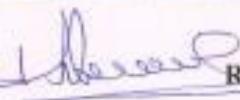
CURRICULUM

Master's degree on speciality of
6M072800 - CROP PROCESSING TECHNOLOGY
(for branches of industry)

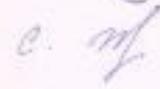
Degree - Master of engineering and technology
Period of education – 1 year

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
I semester								
FL 5201	Foreign language	90	3		2		1	3
Man 5202	Management	60	2	1	1		1	3
Psy 5203	Psychology	90	3	1	1		1	3
ITSP CP 5204	The innovative technology of storage and processing of crop production	60	2	1	1		1	3
EM-1	1. Methods of research and innovation in the field of processing industries 2. Basics of the scientific research in the technology of processing industries	150	5	1	2		1,5	5,5
EM-2	1. Innovative planning of scientific developments in the food industry	150	5	1	2		1,5	5,5

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	2. Resource-saving technologies of production of plant growing							
EM-3	1. The scientific bases of technology of crop production with increased nutritional value 2. The scientific bases of technology of drinks with increased nutritional value and stability	150	5	1	2		1,5	5,5
EM-4	1. Innovative technologies of production of mixed fodders 2. Industrial production of mixed fodders	150	5	1	2		1,5	5,5
Total for 1st semester		900	30	7	13		10	34
2 semester								
IP	Internship practice	150	5				1	5
NIR-1	Experimental Research Work of Master student including the master Project	360	12				1	23
CE	Complex examination	390	13				1	25
	Formalization and the Master thesis defense							
Total for 2nd semester		900	30				3	53
Total		1800	60	7	13		13	87

Vice-rector for Science and Innovations  Rskeldiev B.A.

Head of Postgraduate Education  Koshbaeva L.M.

Head of department  Zhiyenbayeva S.T.

EP Ma "Technology and design of products of light industry" (scientific and pedagogical direction) - 2 years of study	
The purpose of the EP Ma "Technology and design of products of light industry" - raising highly specialized production and teaching personnel capable of critical thinking and developing strategic decisions based on the integration of science and innovative knowledge in the field of design and technology of light industry products	
Competence codes	Competency statement
General cultural competences GCC	
GCC 1	Knows the methods of teaching special subjects, pedagogy and psychology of higher education; able to transfer knowledge and skills necessary for further professional activity
GCC 2	Demonstrates the ability to freely use one of the foreign languages as a means of business communication
GCC 3	Able to independently learn new research methods, change the scientific and research-production profile of their professional activities, socio-cultural and social conditions of activity
GCC 4	Able to conduct bibliographic work with the use of modern information technologies
GCC 5	Knows the methodology and methods of research; means of research and processing of their results; methods of collecting and analyzing scientific information
General Professional Competences GPC	
GPC 1	Able to professionally operate modern equipment and devices in accordance with the goals and objectives of the research work
GPC 2	Applies the methods of mathematical modeling, analysis and experimental research in scientific activities in the field of light industry

GPC 3	Able to set research objectives, select methods of experimental work, interpret and present the results of scientific research in reports, abstracts, publications and in public discussions
GPC 4	Able to solve standard tasks of professional activity on the basis of information and bibliographic culture using information and communication technologies
GPC 5	Apply an in-depth knowledge of legal and ethical standards in assessing the consequences of their professional activities, in developing and implementing socially important projects
Professional competencies PC	
PC 1	Able to conduct a comparative analysis of similar domestic and foreign products, assess their aesthetic level, participate in the implementation of research and experimental work related to the solution of artistic and design problems in the development of artistic and design proposals
PC 2	Able to use information technology and modern computer graphics systems in the development of models of products of light industry
PC 3	Able to study customer requirements for products of light industry and the technical capabilities of the enterprise for their implementation
PC 4	Able to develop design documentation for the production of products of light industry, taking into account the design and technological, aesthetic, economic, environmental and other requirements of the consumer
PC 5	Able to carry out the selection and analysis of patent and other scientific and technical information required at various stages of product design

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CURRICULUM
Master's degree on specialty of
6M072600 – TECHNOLOGY AND DESIGN OF LIGHT INDUSTRY
PRODUCTS

Degree - Master of Technical Sciences
Period of education – 2 years

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IW/MS with teacher	IW/MS
1 semester								
HPhS 5201	History and philosophy of science	90	3	1	1		1	3
FL 5202	Foreign language	90	3		2		1	3
Ped 5203	Pedagogy	90	3	1	1		1	3
Psy 5204	Psychology	90	3	1	1		1	3
KMR E 5301	Kinds and methodology of realization of experiment	90	3	1	1		1	3
EM-1	1. Bases of design of special clothes 2. Evolution of design activity	180	6	2	2		2	6
RW-1	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	270	9				1	17

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	TWMS with teacher	TWMS
Total for 1st semester		900	30	6	8	0	8	38
2 semester								
EM-2	1. Technology for the preparation of scientific documentation 2. New materials in branch	180	6	2	2		2	6
EM-3	1. Mathematical modeling 2. Protection of intellectual property	180	6	2	2		2	6
EM-4	1. Automated planning of wares of light industry 2. Automated planning of wares of sewing industry	180	6	2	2		2	6
EM-5	1. Modern methods of design of products of light industry 2. Modern forms of design of the sewing enterprises	180	6	2	2		2	6
RW-2	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	180	6				1	11
Total for 2nd semester		900	30	8	8	0	9	35
3 semester								
EM-6	1. Perfection of methods for designing garments from new materials 2. Perfection of methods for designing garments from new materials	180	6	2	2		2	6
EM-7	1. Estimation of quality and competition of sewing wares 2. Quality of wares of sewing industry	180	6	2	2		2	6

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
EM-8	1. Innovative technologies in the production of light industry products 2. Innovations in preparation of production	180	6	2	2		2	6
PP	Pedagogical practice	90	3				1	5
RW-3	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	270	9				1	17
Total for 3rd semester		900	30	6	6	0	8	40
4 semester								
RP	Research practice	360	12				1	23
RW-4	Scientific Research Work of Master student including the master dissertation	90	3				1	3
CE	Complex examination	450	15				1	31
	Formalization and the Master thesis defense							
Total for 4th semester		900	30	0	0	0	3	57,0
Total		3600	120	20	22	0	28	170

Vice-rector for Science and Innovations

Rskeldiev B.A.

Head of Postgraduate Education

Koshbaeva L.M.

Head of Department

Talgatbekova A.Zh.

EP Ma "Technology and design of products of light industry" (profile direction) - 1 years of study	
The purpose of the EP Ma "Technology and design of products of light industry"- raining highly qualified specialists who are able to effectively carry out research and production and management activities in the field of advanced technologies for designing light industry products	
General cultural competences GCC	
GCC 1	He knows the methods of teaching special subjects, pedagogy and psychology of higher education; able to transfer knowledge and skills necessary for further professional activity
GCC 2	Demonstrates the ability to freely use one of the foreign languages as a means of business communication
GCC 3	Able to independently acquire with the help of information technology and use in practice new knowledge and skills, including new areas of knowledge not directly related to the field of activity, to expand and deepen their scientific worldview
GCC 4	Able to use in practice the skills and abilities in the organization of research and design work, team management, influence the formation of team goals, assess the quality of the results of their activities
General Professional Competences GPC	
GPC 1	Able to professionally operate modern equipment and devices in accordance with the goals and objectives of the research work;
GPC 2	Able to set and solve problems in the field of experimental research of materials and production of light industry;
GPC 3	Able to use information technology and modern computer graphics systems in the development of models of products of light industry;
GPC 4	Able to work with color and color compositions, layout and simulate;
Professional competencies PC	
PC 1	Able to exercise authorial control over the gradual production of products, carry out standard and certification testing of clothing, footwear, leather goods and materials for them, investigate the causes of marriage in production and develop proposals for its prevention and elimination
PC 2	Able to study consumer requirements for products of light industry, and the technical capabilities of an enterprise to meet them;
PC 3	Able to cooperate with colleagues and work in a team, organize the work of small groups of performers
PC 4	Able to develop design documentation for the production of products of light industry, taking into account the design and technological, aesthetic, economic, environmental and other requirements of the consumer

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CURRICULUM

Master's degree on specialty of

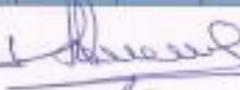
**6M072600 – TECHNOLOGY AND DESIGN OF LIGHT INDUSTRY
PRODUCTS**

Degree - Master of engineering and technology
Period of education – 1 year

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
1 semester								
FL 5201	Foreign language	90	3		2		1	3
Man 5202	Management	60	2	1			1	3
Psy 5203	Psychology	90	3	1	1		1	3
APWLI 5301	Automated planning of wares of light industry	60	2	1			1	3
EM-1	1. Technology for the preparation of scientific documentation 2. New materials in branch	150	5	1	2		1,5	5,5
EM-2	1. Modern methods of design of products of light industry 2. Modern forms of design of the sewing enterprises	150	5	1	2		1,5	5,5

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
EM-3	1. Kinds and methodology of realization of experiment 2. Innovative methods of production of garments	150	5	1	2		1,5	5,5
EM-4	1. Perfection of methods for designing garments from new materials 2. Perfection of methods for designing garments from new materials	150	5	1	2		1,5	5,5
Total for 1st semester		900	30	7	11	0	10	34
2 semester								
IP	Internship practice	150	5				1	5
RW-1	Experimental Research Work of Master student including the master dissertation	360	12				1	27
CE	Complex examination	390	13				1	25
	Formalization and the Master thesis defense							
Total for 2nd semester		900	30	0	0	0	3	57
Total		1800	60	7	11	0	13	91

Vice-rector for Science and Innovations  Rskeldiev B.A.

Head of Postgraduate Education  Koshberbaeva L.M.

Head of Department  Talgatbekova A.Zh.

EP - Ma "Technology and design of textile materials" (scientific and pedagogical direction) - 2 years of study	
The purpose of the EP Ma "Technology and design of textile materials" is to prepare scientific and pedagogical specialists of a high profile in the field of designing and producing textile and light industry products, to develop personal qualities in students and forming general cultural, general professional and professional competencies	
Competence codes	Competency statement
General Cultural Competences (GCC)	
GCC 1	To demonstrate knowledge of the philosophical problems of natural, technical, social sciences and humanities, the responsibility of a scientist for the choice of research methods, the ability to assess research areas and schools, apply, present and defend their own vision of the problems in their professional activities
GCC 2	To demonstrate an understanding of the nature and significance of information in the development of modern society and technical science, the ability to use modern computer equipment, to have communication skills, to select and find solutions using the latest technical tools and information technologies
GCC 3	Willingness to change the scientific and industrial profile of their professional activities, to work on interdisciplinary projects, to cooperate with colleagues and work in a team
GCC 4	The ability in terms of the development of science and changing social practices to reassess accumulated experience, analyze their capabilities, apply and transform new knowledge using modern educational technologies
GCC 5	To communicate in a professional environment and in society as a whole, including communication in a foreign language, clearly state and protect the results of production and research activities in the field of technology and design of textile materials
General Professional Competences GPC	
GPC 1	Willingness to apply modern achievements of science and advanced technology in research projects, to develop and implement technologies for the manufacture of textiles
GPC 2	The ability to develop a new range of textile fabrics and products for various purposes, to organize their production in an industrial environment in accordance with the author's samples, to make the necessary set of technical documentation

GPC 3	The ability to carry out a feasibility study of innovative projects, to perform engineering and economic tasks, to evaluate the costs and results of the organization
GPC 4	The ability to understand the current problems of scientific and technological development of the raw material base, modern technologies for recycling textile industry waste, scientific and technical policy in the field of technology and design of textiles
GPC 5	The ability to set research objectives, select methods of experimental work, interpret and present the results of scientific research in the form of reports, publications and public discussions
GPC 6	The ability to explore current problems of scientific and technological development of the raw material base, modern technologies for recycling textile industry waste, scientific and technical policy in the field of technology and design of textiles
Professional Competences PC	
PC 1	The ability to use the basic laws of the natural sciences, methods of mathematical analysis and modeling, theoretical professional knowledge to solve professional problems in their activities; choose the most effective methods and ways of performing professional tasks
PC 2	The ability to analyze the state and dynamics of indicators of the quality of objects of activity (raw materials, yarn, fabric, knitwear, nonwoven materials, technological processes) using the necessary methods and means of research
PC 3	The ability to independently carry out laboratory studies for solving research and production problems using modern equipment and methods for studying the properties of raw materials, semi-finished and finished products when performing research in the field of technology and design of textile materials
PC 4	The ability, based on the achievements of modern science, to develop innovative and improve traditional technologies for designing textile materials; the ability to independently learn new research methods, to change the scientific and research-production profile of their professional activities
PC 5	Willingness to use information technologies in the development of new textile materials and products; to use modern achievements of science and advanced technology in research projects
PC 6	The ability, based on the achievements of bio-chemical technology, to develop innovative, with specified properties, textile materials and technologies for modifying traditional textile materials with new properties

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2018

CURRICULUM
Master's degree on specialty of
6M073300 - TECHNOLOGY AND DESIGN OF TEXTILE MATERIALS

Degree - Master of Technical Sciences
Period of education – 2 years

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
1 semester								
HPhS 5201	History and philosophy of science	90	3	1	1		1	3
FL 5202	Foreign language	90	3		2		1	3
Ped 5203	Pedagogy	90	3	1	1		1	3
Psy 5204	Psychology	90	3	1	1		1	3
ITTM 5301	Innovative technologies of textile materials	90	3	1	1		1	3
EM-1	1. Organization and planning of research 2. Scientific Research Methodology	90	3	1	1		1	3
EM-2	1. Textile materials for special clothes and technical purposes 2. Protection of intellectual property	150	5	1	2		1,5	5,5
NIR-1	Scientific Research Work of Master student including the master dissertation (with	210	7				1	13

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	continous theoretical training)							
	Total for 1st semester	900	30	6	9	0	8,5	36,5
	2 semester							
EM-3	1. Information technology in the production of textiles 2. Innovative concepts of fashion and textiles	150	5	1	2		1,5	5,5
EM-4	1. Design of experiments and optimization of textile production 2. Methods for predicting properties of textile materials	150	5	1	2		2	5
EM-5	1. Biotechnological processes in the finishing of textile materials 2. Designing knitwear new structures	150	5	1	2		2	5
EM-6	1. Nanotechnology in textiles 2. Quantitative and qualitative analysis of textile materials	150	5	1	2		2	5
EM-7	1. Methods for structuring and decorating nonwovens 2. Spinning systems and modern ways of making yarn	90	3	1	1		1	3
NIR-2	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	210	7				1	13
	Total for 2nd semester	900	30	5	9	0	9,5	36,5
	3 semester							
EM-8	1. Theory and practice of textile finishing materials with water-soluble polymers 2. Designing knitwear	150	5	1	2		1,5	5,5
EM-9	1. Environmental problems finishing production 2. Saving technologies hosiery	150	5	1	2		1,5	5,5

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
EM-10	1. Innovative technologies in coloring textiles 2. Computer technologies of processes of production of the knitted products	150	5	1	2		1,5	5,5
EM-11	1. Physicochemistry of the processes of formation of the structure of nonwovens 2. Innovative methods of designing knitwear based on the technology of filtrating	150	5	1	2		1,5	5,5
PP	Pedagogical practice	90	3				1	5
NIR-3	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	210	7				1	13
Total for 3rd semester		900	30	4	8	0	9	40
4 semester								
RP	Research practice	360	12				1	23
NIR-4	Scientific Research Work of Master student including the master dissertation	90	3				1	11
CE	Complex examination	450	15				1	23
	Formalization and the Master thesis defense							
Total for 4th semester		900	30	0	0	0	3	57
Total		3600	120	15	26	0	30	169

Vice-rector for Science and Innovations

Rskeldiev B.A.

Head of Postgraduate Education

Koshbaeva L.M.

Head of department

Jurinskaya I.M.

EP Ma "Technology and design of textile materials" (profile direction) - 1 years of study	
The purpose of the EP Ma "Technology and design of textile materials" is training of high profile specialists in the design and production of textile and light industry products	
Competence codes	Competency statement
General Cultural Competences GCC	
GCC 1	To demonstrate knowledge of the philosophical problems of natural, technical, social sciences and humanities, the responsibility of a scientist for the choice of research methods, the ability to assess research areas and schools, apply, present and defend their own vision of the problems in their professional activities
GCC 2	To demonstrate an understanding of the nature and significance of information in the development of modern society and technical science, the ability to use modern computer equipment, to have communication skills, to select and find solutions using the latest technical tools and information technologies
GCC 3	Willingness to change the scientific and industrial profile of their professional activities, to work on interdisciplinary projects, to cooperate with colleagues and

	work in a team
GCC 4	The ability in terms of the development of science and changing social practices to reassess accumulated experience, analyze their capabilities, apply and transform new knowledge using modern educational technologies
GCC 5	To communicate in a professional environment and in society as a whole, including communication in a foreign language, clearly state and protect the results of production and research activities in the field of technology and design of textile materials
General Professional Competences GPC	
GPC 1	Willingness to apply modern achievements of science and advanced technology in research projects, to develop and implement technologies for the manufacture of textiles
GPC 2	The ability to develop a new range of textile fabrics and products for various purposes, to organize their production in an industrial environment in accordance with the author's samples, to make the necessary set of technical documentation
GPC 3	The ability to carry out a feasibility study of innovative projects, to perform engineering and economic tasks, to evaluate the costs and results of the organization
GPC 4	The ability to understand the current problems of scientific and technological development of the raw material base, modern technologies for recycling textile industry waste, scientific and technical policy in the field of technology and design of textiles
GPC 5	The ability to set research objectives, select methods of experimental work, interpret and present the results of scientific research in the form of reports, publications and public discussions
GPC 6	The ability to explore current problems of scientific and technological development of the raw material base, modern technologies for recycling textile industry waste, scientific and technical policy in the field of technology and design of textiles
Professional Competencies PC	
PC 1	The ability to use the basic laws of the natural sciences, methods of mathematical analysis and modeling, theoretical professional knowledge to solve professional problems in their activities; choose the most effective methods and ways of performing professional tasks
PC 2	The ability to analyze the state and dynamics of indicators of the quality of objects of activity (raw materials, yarn, fabric, knitwear, nonwoven materials, technological processes) using the necessary methods and means of research
PC 3	The ability to independently carry out laboratory studies for solving research and production problems using modern equipment and methods for studying the properties of raw materials, semi-finished and finished products when performing research in the field of technology and design of textile materials
PC 4	The ability, based on the achievements of modern science, to develop innovative and improve traditional technologies for designing textile materials; the ability to independently learn new research methods, to change the scientific and research-production profile of their professional activities
PC 5	Willingness to use information technologies in the development of new textile materials and products; to use modern achievements of science and advanced technology in research projects
PC 6	The ability, based on the achievements of bio-chemical technology, to develop innovative, with specified properties, textile materials and technologies for modifying traditional textile materials with new properties

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T.K. Kulazhanov
2018

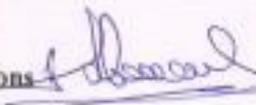
CURRICULUM

Master's degree on speciality of
6M073300 - TECHNOLOGY AND DESIGN OF TEXTILE MATERIALS

Degree - Master of engineering and technology
Period of education – 1 year

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
1 semester								
FL 5201	Foreign language	90	3		2		1	3
Man 5202	Management	60	2	1			1	2
Psy 5203	Psychology	90	3	1	1		1	3
EM-1	1. Information technology in the production of textiles 2. Computer technologies of processes of production of the knitted products	150	5	1	2		1,5	5,5
EM-2	1. Theory and practice of textile finishing materials with water-soluble polymers 2. Saving technologies hosiery	150	5	1	2		1,5	5,5

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
ITTM 5301	Innovative technologies of textile materials	60	2	1	1		0,5	1,5
EM-3	1. Designing knitwear new structures 2. Nanotechnology in textiles	150	5	1	2		1,5	5,5
EM-4	1. Organization and planning of research 2. Designing knitwear	150	5	1	2		1,5	5,5
Total for 1st semester		900	30	7	12	0	9,5	31,5
2 semester								
IP	Internship practice	150	5				1	9
NIR-1	Experimental Research Work of Master student including the master project	360	12				1	25
CE	Complex examination Formalization and the Master thesis defense	390	13				1	23
Total for 2nd semester		900	30	0	0	0	3	57
Total		1800	60	7	12	0	12,5	88,5

Vice-rector for Science and Innovations  Rskeldiev B.A.

Head of Postgraduate Education  Koshbaeva L.M.

Head of department  Jurinskaya I.M.

EP - Ma "Safety of non-food goods and products" (scientific and pedagogical direction) – 2 years of study	
The purpose of the EP Ma "Safety of non-food goods and products" is training of highly qualified competitive research and educational personnel in the field of assessment and safety of goods and products of light industry according to requirements of republican and international labor markets	
Competence codes	Competency statement
General Cultural Competences (GCC)	
GCC 1	To show knowledge of philosophical problems of natural, technical, the social sciences and humanities, be responsible as a scientist for the choice of research techniques, ability to estimate the scientific directions and schools, to state and defend own vision of the considered problems in professional activity
GCC 2	To show a comprehension of a substance and value of information in the development of the modern society and technical science, ability to use the modern computer means and communications; use for the solution of professional tasks of the modern technical means and information technologies.
GCC 3	Readiness for training on improving of the professional activity, to work in team
GCC 4	The ability in the conditions of the development of science and the changing social practice to reevaluation of the accumulated experience, the analysis of the opportunities, ability to acquire new knowledge, using the modern educational technologies
GCC 5	To carry out communications in the professional environment and in society in general, including in a foreign language, to legibly state and protect results of research activity in the field of safety of non-food items and products
General Professional Competences GPC	
GPC 1	Ability to conduct researches in the field of expansion of the assortment, improving the quality and safety of goods, making reports
GPC 2	Ability to define the consumer properties, the quantitative, qualitative structure and principal specifications of products which allows to identify unambiguously classification accessory of products in compliance of Technical Regulations of the Customs Union
GPC 3	Readiness to use in practice skills in the organization of research works, to be capable to accept optimum organizational-management decisions and to bear responsibility for them
GPC 4	Participation in projection of new types of products, in research of its consumer properties, quality indicators, prediction of periods of validity
GPC 5	Ability to analytical activity, to statement of the purposes and the solution of research tasks with application of traditional and innovative methods and tools
GPC 6	Ability to self-contained training in new research techniques, to change of a scientific and research and production profile of professional activity
Professional Competences PC	
PC 1	The ability to use the basic laws of the natural sciences, methods of mathematical analysis and modeling, theoretical professional knowledge to solve professional problems in their activities; choose the most effective methods and ways of performing professional tasks

Appendix: Programme Learning Outcomes and Curricula

PC 2	Ability to analyze a state and dynamics of indexes of quality of activity objects (raw materials, yarn, fabric, knitted products, nonwoven fabrics, technological processes) using of the modern methods and research tools
PC 3	The ability to independently carry out laboratory researches to solve scientific-research problems using modern equipment and methods for researching the properties of raw materials, semi-finished products and finished products when performing research in the field of non-food products and products safety
PC 4	Ability to reveal types of danger which can potentially arise at consumption or operation of nonfoods; to use health regulations and norms for production and safety of goods, hygienic standards for indexes of safety for specific groups of non-food items
PC 5	Ability to choose test methods; to analyze and process results of researches and measurements; to participate in conducting the experimental works at expertise of new non-food items and technological processes
PC 6	Readiness to use information technologies at expertise of non-food items and products; to use the modern achievements of science and advanced technology in scientific-research works

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC
OF KAZAKHSTAN
ALMATY TECHNOLOGICAL UNIVERSITY

«AGREED»

Chairman of the Board of Trustees
M.D. Sabralieva
2018

«APPROVED»
Rector ATU

E.K. Kulazhanov
2018

CURRICULUM

Master 's degree on speciality of

6M073600 - SAFETY OF NONFOOD GOODS AND PRODUCTS

Degree - Master of Technical Sciences

Period of education – 2 years

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
I semester								
HPhS 5201	History and philosophy of science	90	3	1	1		1	3
FL 5202	Foreign language	90	3		2		1	3
Ped 5203	Pedagogy	90	3	1	1		1	3
Psy 5204	Psychology	90	3	1	1		1	3
NBNT 5301	Reliability and safety of non-food items and products	90	3	1	1		1	3
EM-1	1. Organization and planning of research 2. Scientific Research Methodology	90	3	1	1		1	3
EM-2	1. Textile materials for special clothes and technical purposes 2. Protection of intellectual property	150	5	1	2		1,5	5,5
NIR-1	Scientific Research Work of Master student including the master dissertation (with continous theoretical training)	210	7				1	13

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
Total for 1st semester		900	30	6	9	0	8,5	36,5
2 semester								
EM-3	1. Modern methods of research of structure and properties of materials 2. Ecological standardization of textile material	150	5	1	2		1,5	5,5
EM-4	1. Methods for predicting properties of textile materials 2. Planning of experiment and optimization of processes of production of textile goods	150	5	1	2		1,5	5,5
EM-5	1. Goods examination 2. Merchandise and safety leather shoe product	150	5	1	2		1,5	5,5
EM-6	1. Commodity and examination of textiles 2. Qualitative and quantitative examination of goods	150	5	1	2		1,5	5,5
EM-7	1. Modern problems of standardization and metrology 2. Declaring of products of textile and light industry	90	3	1	1		1	3
NIR-2	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	210	7				1	13
Total for 2nd semester		900	30	5	9	0	8	38
3 semester								
EM-8	1. The performance characteristics of products 2. Environment-friendly products	150	5	1	2		1,5	5,5
EM-9	1. Technical regulations on safety of children's goods and products 2. Commodity and examination sewing and knitted goods	150	5	1	2		1,5	5,5

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMIS with teacher	IWMIS
EM-10	1. Nanotechnologies in production of textile goods 2. The theory and practice of antimicrobial textiles	150	5	1	2		1,5	5,5
EM-11	1. Qualification and quality management of textile and light industry products 2. Quality management systems	150	5	1	2		1,5	5,5
PP	Pedagogical practice	90	3				1	5
NIR-3	Scientific Research Work of Master student including the master dissertation (with continuous theoretical training)	210	7				1	13
Total for 3rd semester		900	30	4	8	0	8	40
4 semester								
RP	Reseach practice	360	12				1	23
NIR-4	Scientific Research Work of Master student including the master dissertation	90	3				1	11
CE	Complex examination	450	15				1	23
	Formalization and the Master thesis defense							
Total for 4th semester		900	30	0	0	0	3	57
Total		3600	120	15	26	0	27,5	170,5

Vice-rector for Science and Innovations

Rskeldiev B.A.

Head of Postgraduate Education

Koshberbaeva L.M.

Head of department

Jurinskaya I.M.

EP Ma “Safety of non-food goods and products” (profile direction) - 1 years of study	
The purpose of the EP Ma “Safety of non-food goods and products” is training highly qualified specialists in the field of assessment and safety of goods and products in accordance with the requirements of the republican and international labor markets	
Competence codes	Formulation of competences
General Cultural Competences (GCC)	
GCC 1	To show knowledge of philosophical problems of natural, technical, the social sciences and humanities, be responsible as a scientist for the choice of research techniques, ability to estimate the scientific directions and schools, to state and defend own vision of the considered problems in professional activity
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GCC 4	The ability in the conditions of the development of science and the changing social practice to revaluation of the accumulated experience, the analysis of the opportunities, ability to acquire new knowledge, using the modern educational technologies
GCC 5	To carry out communications in the professional environment and in society in general, including in a foreign language, to legibly state and protect results of research activity in the field of safety of non-food items and products
General Professional Competences GPC	
GPC 1	Ability to conduct researches in the field of expansion of the assortment, improving the quality and safety of goods, making reports
GPC 2	Ability to define the consumer properties, the quantitative, qualitative structure and principal specifications of products which allows to identify unambiguously classification accessory of products in compliance of Technical Regulations of the Customs Union
GPC 3	Readiness to use in practice skills in the organization of research works, to be capable to accept optimum organizational-management decisions and to bear responsibility for them

GPC 4	Participation in projection of new types of products, in research of its consumer properties, quality indicators, prediction of periods of validity
GPC 5	Ability to analytical activity, to statement of the purposes and the solution of research tasks with application of traditional and innovative methods and tools
GPC 6	Ability to self-contained training in new research techniques, to change of a scientific and research and production profile of professional activity
Professional Competences PC	
PC 1	The ability to use the basic laws of the natural sciences, methods of mathematical analysis and modeling, theoretical professional knowledge to solve professional problems in their activities; choose the most effective methods and ways of performing professional tasks
PC 2	Ability to analyze a state and dynamics of indexes of quality of activity objects (raw materials, yarn, fabric, knitted products, nonwoven fabrics, technological processes) using of the modern methods and research tools
PC 3	The ability to independently carry out laboratory researches to solve scientific-research problems using modern equipment and methods for researching the properties of raw materials, semi-finished products and finished products when performing research in the field of non-food products and products safety
PC 4	Ability to reveal types of danger which can potentially arise at consumption or operation of nonfoods; to use health regulations and norms for production and safety of goods, hygienic standards for indexes of safety for specific groups of non-food items
PC 5	Ability to choose test methods; to analyze and process results of researches and measurements; to participate in conducting the experimental works at expertise of new non-food items and technological processes.
PC 6	Readiness to use information technologies at expertise of non-food items and products; to use the modern achievements of science and advanced technology in scientific-research works

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CURRICULUM

Master's degree on speciality of
6M073600 - SAFETY OF NONFOOD GOODS AND PRODUCTS

Degree - Master of engineering and technology
Period of education – 1 year

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	TWMS with teacher	TWMS
1 semester								
FL 5201	Foreign language	90	3		2		1	3
Man 5202	Management	60	2	1			1	2
Psy 5203	Psychology	90	3	1	1		1	3
NBNTI 5301	Reliability and safety of non-food goods and products	150	5	1	2		1,5	5,5
EM-1	1. Ecological standardization of textile material 2. Modern methods of research of structure and properties of materials	150	5	1	2		1,5	5,5
EM-2	1. Goods examination 2. Merchandise and safety leather shoe product	150	5	1	2		1,5	5,5
EM-3	1. Commodity and	60	2	1	1		0,5	1,5

Appendix: Programme Learning Outcomes and Curricula

	Name of module	hours	ECTS	Weekly classroom hours				
				Lecture lessons	Practical lessons	Laboratory classes	IWMS with teacher	IWMS
	examination of textiles 2. Nanotechnologies in production of textile goods							
EM-4	1. Commodity and examination sewing and knitted goods 2. Technical regulations on safety of children's goods and products	150	5	1	2		1,5	5,5
Total for 1st semester		900	30	7	12	0	9,5	31,5
2 semester								
IP	Internship practice	150	5				1	9
NIR-1	Experimental Research Work of Master student including the master project	360	12				1	25
CE	Complex examination Formalization and the Master thesis defense	390	13				1	23
Total for 2nd semester		900	30	0	0	0	3	57
Total		1800	60	7	12	0	12,5	88,5

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