



ASIIN Accreditation Report

PhD Programmes

Technology of Food Products

Crop Processing Technology

Technology and Design of Light Industry Products

Technology and Design of Textile Materials

Safety of Non-Food Goods and Products

Provided by

Almaty Technological University

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A About the Certification Process

Title of the PhD Programme	Previous certification
Technology of Food Products	/
Crop Processing Technology	/
Technology and Design of Light Industry Products	/
Technology and Design of Textile Materials	/
Safety of Non-Food Goods and Products	/
<p>Date of the contract: 13.06.2018</p> <p>Submission of the final version of the self-assessment report: 16.08.2019</p> <p>Date of the onsite visit: 03.10.2019</p> <p>at: Almaty Technological University, Main Campus</p>	
<p>Peer panel:</p> <p>Prof. Dr. Manfred Hampe, Technical University of Darmstadt</p> <p>Prof. Dr. Wolfgang Müller, Technical University of Berlin</p> <p>Dr. Manfred Grüneberg, Ehrmann AG</p> <p>Dr. Bakhytkul Abdizhapparova, Auezov South Kazakhstan State University (Shymkent)</p> <p>Saltanat Bashirova, PhD candidate, Auezov South Kazakhstan State University (Shymkent)</p>	
<p>Representative of the ASIIN headquarter: Tobias Buse</p>	
<p>Responsible decision-making committee: Certification committee</p>	
<p>Criteria used:</p> <p>Standards for the Certification of (Further) Education and Training for courses and modules related to Computer Sciences, Technology, Natural Sciences and Business Economics as of 27.07.11</p>	

European Standards and Guidelines as of 15.05.2015

In order to facilitate the legibility of this document, only masculine noun forms will be used hereinafter. Any gender-specific terms used in this document apply to both women and men.

B Characteristics of the PhD Programme

a) Name of the programme	b) Degree awarded upon conclusion	c) Corresponding level of the European Qualifications Framework	d) Mode of Study	e) Duration & Credit Points	f) First time of offer* & Intake rhythm	g) Number of students per intake ¹	h) Fees
Technology of Food Products	Doctor of Philosophy (PhD)	8	Full time	3 years 6 semesters 180 CP	2001 August	4	1.300.000 KZT (3.087 €) per year
Crop Processing Technology	Doctor of Philosophy (PhD)	8	Full time	3 years 6 semesters 180 CP	2001 August	4	1.300.000 KZT (3.087 €) per year
Technology and Design of Light Industry Products	Doctor of Philosophy (PhD)	8	Full time	3 years 6 semesters 180 CP	2001 August	1	1.300.000 KZT (3.087 €) per year
Technology and Design of Textile Materials	Doctor of Philosophy (PhD)	8	Full time	3 years 6 semesters 180 ECTS	2001 August	2	1.300.000 KZT (3.087 €) per year
Safety of Non-Food Goods and Products	Doctor of Philosophy (PhD)	8	Full time	3 years 6 semesters 180 CP	2001 August	0	1.300.000 KZT (3.087 €) per year

For better readability, **learning outcomes** and **curricula** of the five programmes are outlined in the appendix.

¹ Average number of places allocated to each programme by state order between 2015 and 2019.

C Peer Report for the ASIIN Certificate

1. Formal Information

Criterion 1.1 Formal Information

Evidence:

- Self-assessment report
- Regulation on the Practice of Undergraduates and Doctoral PhD
- Regulation on Research Work of Doctoral Students
- General information on ATU's homepage, available at: <https://welcome.atu.kz/en/main/phd>
- Discussions with representatives of faculty management, programme coordinators, teaching staff and PhD candidates

Preliminary assessment and analysis of the peers:

The university provides all relevant formal information about the five PhD programmes. The name and the degree title of the PhD programme, its duration, the awarded credit points as well as the study forms are mentioned in the self-assessment report. Furthermore, additional documents, such as the "Regulation on the Practice of Undergraduates and Doctoral PhD" or the "Regulation on Research Work of Doctoral Students", give supplementary information about the PhD programmes. The PhD candidates are required to study the programmes with full-time involvement over a period of three years. Participants are awarded 180 ECTS credits upon successful completion of the respective programme.

The fees for the PhD programmes amount to 1.300.000 KZT (3.087 €) per year. During the audit, the university explains that PhD candidates normally obtain a state grant of 84.212 KZT (200 €) per month from the Republic of Kazakhstan if they satisfy all requirements for undertaking a specific PhD programme.

Overall, the peers consider the formal information about the PhD programmes to be accurate and well defined.

The European Higher Education Reforms (Bologna Process) discern three cycles: the first cycle ending with a bachelor's degree, the second cycle ending with a master's degree, and the doctorate as the third cycle. However, the first two cycles differ fundamentally from

the third cycle. While participants in the first two cycles are 'students', participants in the third cycle are not 'students' any more but 'young professionals'. They are 'early-stage researchers' and should be employed and paid by the university. This fact should be reflected in the designation: Participants in the third cycle are 'PhD candidates' and not 'PhD students'. The peers recommend that ATU should change the term 'PhD student' to 'PhD candidate' in all relevant documents.

Criterion 1.2 Legal relationship: mutual rights and duties

Evidence:

- Regulation on the Board of Trustees
- Members of the Board of Trustees
- Regulation on the Academic Committee and the Subcommittee on Educational Programmes
- Regulations on the Practice of Undergraduates and Doctoral PhD
- Rules to Studies in Educational Organizations that implement vocational education programmes of postgraduate educated (approved by Order No 701 of July 19, 2013, by the Government of the Republic of Kazakhstan)
- Regulation on Research Work of Doctoral Students

Preliminary assessment and analysis of the peers:

The rights and duties of the applicants and postgraduate students are accurately defined in the document "Regulation on the Practice of Undergraduates and Doctoral PhD" as well as in the "Regulation on Research Work of Doctoral Students", which entail admission rules, provisions for study progress and completion of studies and for supervision and evaluation of the doctoral thesis. Nevertheless, the peers detect that the relevant information regarding the mutual rights and duties is only available in Kazakh and Russian on ATU's website. For instance, the list of prerequisites for the corresponding PhD programmes is only available in Russian and Kazakh and not in English while the link to the rules of admission of the programmes does not lead to any content. Thus, the website only encompasses very general information about the five PhD programmes that can be applied to all 11 PhD programmes at ATU. Since ATU strives to become an internationally recognized university, the auditors recommend to publish these documents in English and to add relevant content to the currently empty websites. As a result, it is possible to create greater transparency for foreign PhD candidates as well. After the audit ATU provides a link under which documents are available via the automated academic process management system "Univer". These include English translations of the "Regulation on monitoring and evaluation educational achievements of students", the "Regulation on the organization of professional practices

of ATU”, the “Regulation on the research work of doctoral students PhD ATU” and the “QMS Policy of internal quality assurance of educational activities”. Documents such as timetables and module handbooks are only provided in Russian; others are unavailable due to broken links. The peers thus recommend maintaining and expanding this section of the website.

To summarize, the auditors regard the mutual rights and duties, defined in the relevant documents, as transparent, accurate and sufficient to implement the PhD programmes successfully. However, the peers recommend publishing all relevant study documents on the website in English as well (see criterion 7.1).

Final assessment of the peers after the comment of the Provider regarding criterion 1:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as fulfilled.

2. Courses/Modules: Content, Policy and Implementation

Criterion 2.1 Learning outcomes of the course/module

Evidence:

- Objective-module matrices for the five PhD programmes
- Curricula of the five PhD programmes
- Module handbooks of the five PhD programmes
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

The highest level 8 of the European Qualifications Framework (EQF) is the reference for the evaluation of the five PhD programmes. Level 8 implies that PhD candidates gain “knowledge at the most advanced frontier of a field of work or study and at the interface between fields”, acquire “the most advanced and specialized skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice”. They are capable of demonstrating “substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research”. In this context, ATU

presents the learning outcomes of the five PhD programmes in its self-assessment report, including the respective curricula and objective-module matrices of each PhD programme.

The qualification objectives are grouped into General Cultural Competences (GCC), General Professional Competences (GPC) and Professional Competences (PC). However, the intended learning outcomes are described too generically, as they are rather brief and not very detailed. Thus, the peers urge the university to draft distinct learning outcomes that describe the academic and subject-specific qualifications gained in the respective PhD programme.

Furthermore, for the PhD programmes TFP and CPT the self-assessment report presents two different trajectories with distinct curricula. While the PhD programme CPT is associated with the two trajectories “Processing Technology, Storage and Processing of Grain” and “Technology of Bread, Pasta and Confectionery”, the PhD programme TFP does not mention the specific names of its trajectories in the curricula. According to the peers, it is necessary to define distinct learning outcomes for each trajectory of the PhD programmes TFP and CPT since the PhD candidates are educated for a specialized career path. To create greater transparency, the peers argue that ATU has to name these trajectories appropriately in the curricula as well. ATU replies that there are in fact no predefined trajectories; rather, the curricula offer some freedom of choice, which PhD candidates can use to focus on a particular topic. This specialization is indicated as “trajectory” in the individual curriculum. However, it is not clear to the peers why this is not handled in the same way in all five PhD programmes, as the other three PhD programmes TDLIP, TDTM and SNFGP do not mention different trajectories at all.

The peers appreciate that ATU provides the objective-module matrices of each PhD programme. This matrix visualizes how each module serves the overall learning outcomes by creating a detailed overview of the knowledge, skills and competencies taught in each module of the programme. The objective-module matrices should be adapted to the two different trajectories of the PhD programmes TFP and CPT as well. Since the two trajectories have different modules, the objective-module matrices should visualize how each of these modules contributes to the achievement of the intended learning outcomes (see criterion 2.4).

Overall, the peers reason that the described learning outcomes meet EQF level 8. Nevertheless, they notice that they are not very specific to the PhD programmes under review since they may also be applied to PhD programmes of a different academic field. The auditors urge ATU to design distinct qualification objectives that not only describe the generic but also the subject-specific learning outcomes of each of the five PhD programmes. These

learning outcomes have to be publicly accessible in the study regulations of the programmes, for instance on ATU's website.

Criterion 2.2 Prospects for the labour market and practical orientation
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Evidence:

- Table about the position of PhD graduates in the labour market from 2015 to 2019 (p. 100, self-assessment report)
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives

Preliminary assessment and analysis of the peers

During the audit discussions, the university representatives explain that the main educational objective of the PhD programmes is to educate PhD candidates for scientific research institutes, academic institutions as well as for the industry. According to ATU, the majority of PhD candidates works in the academic field or for research institutions subsequent to successful graduation. The introduction of the PhD programmes is attributable to the plan by the Kazakh Ministry of Education to educate more academic staff with a PhD degree.

The peers inspect the provided table about the position of PhD graduates in the Kazakh labour market. They conclude from this table that the majority of graduates works for large businesses while merely a minority is employed at state institutions (which implies academic and research institutions). Since this conclusion is a clear contradiction to ATU's statement, claiming that the majority of graduates works for academic institutions, the auditors require the university to explain this contradiction.

Moreover, the auditors see that the table about labour market statistics has a very low number of PhD graduates (a range from 1 to 3) in the preceding years from 2015 to 2018. ATU informs the peers that in the PhD programmes under review there are currently 37 candidates (9 in the 1st year, 14 in the 2nd year, and 14 in the 3rd year). In the self-assessment report, graduates are mentioned that have completed their studies since 2015. In total, over the past 5 years, 34 PhD candidates have completed their studies in the PhD programmes.

ATU also educates its doctoral candidates with internships during the PhD programmes to increase the chances of successful employment after graduation. The curriculum includes laboratory work to give PhD candidates the opportunity to conduct their research practice at the university's laboratories (see criterion 5.2). Alternatively, PhD candidates are allowed to do a research-focused internship at a company. The length of the internship depends on

the aim of the research. The auditors appreciate that candidates can do their research within a company as well (see criterion 3.1). Nevertheless, they demand that the length of the internship needs to be anchored in the internship regulations and be publicly accessible for all relevant stakeholders. During the audit discussions, the university representatives did not give a clear answer about the length of the internship.

During the audit discussions, the peers talk with industry representatives about the employability of PhD candidates. The economic representatives confirm that Kazakh firms have a demand for well-educated PhD graduates. One industry representative from a bread factory confirms that the PhD candidates' research is very useful since the bread factory applies the research findings within the company. In addition to that, the industry representatives also explain that pursuing the PhD education is worthwhile in Kazakhstan as PhD graduates receive a 50% higher starting salary in comparison to Master graduates.

Overall, the auditors reason that the employability of PhD graduates is very good on the Kazakh labour market. Nevertheless, ATU should provide meaningful and accurate employment statistics of the graduates. The numbers should be consistent with the statements of ATU during the audit discussions since the provided figures are inconsistent and lead to contradictions. Furthermore, the PhD programmes are introduced due to the plan of the Kazakh state to educate a higher number of PhD holders. Additionally, there is a demand by the Kazakh economy for well-educated PhD graduates since PhD holders are expected to have a higher starting salary in comparison to Master graduates. According to the auditors, the practical orientation provides candidates with many opportunities to follow their research work as well, for instance via research-oriented internships. Nevertheless, the length of the internship needs to be defined in the internship regulations and be published on the website.

Criterion 2.3 Admission requirements

Evidence:

- Self-assessment report
- Model Rules to Studies in Educational Organizations that implement vocational education programmes of postgraduate education, approved by Order No 701 of July 19, 2013, by the Government of the Republic of Kazakhstan
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

The admission of doctoral candidates at ATU is based on educational grants offered by the Kazakh state. Nevertheless, candidates that do not satisfy all requirements for the PhD programmes and thus the grant are allowed to study the programme under the condition that they pay the fees on their own. Therefore, the following preconditions for entering the PhD programme are not binding:

Educational grants are allocated on a competitive basis, according to the results of entrance exams. There is a subject-related exam for each PhD programme as well as a foreign language test. The applicants for the PhD programme need to have a Master's degree and at least one year of working experience in a related field and be capable of a foreign language. International candidates have to prove knowledge of the Kazakh or Russian language, accordingly. The admission to the doctoral studies is based on the "Model Rules to Studies in Educational Organizations" that are defined by the Kazakh government and clearly outline the requirements and the documents to be handed in for the PhD application.

Subsequent to the admission to the programme, the PhD candidates select a research topic in accordance with their scientific advisors. Since the PhD candidates also have to write a letter of motivation including a small research proposal, they are able to find a research topic quickly. The scientific advisors should be a domestic and a foreign advisor. However, candidates have time to find a foreign advisor and are able to start the programme with solely a domestic advisor as well.

To summarize, the auditors conclude that the selection process for the admission to PhD programmes at ATU is well-defined and outlined transparently in the "Model Rules to Studies in Educational Organizations" by the Kazakh government. The peers are very surprised that these rules only apply for candidates that are interested in receiving a state grant. However, they understand that this is normal in Kazakhstan. The auditors appreciate that the applicants have to pass a foreign language test (IELTS) with a good grade to be admitted, given the fact that the PhD candidates will do research abroad, have to read international research articles in English and are supposed to communicate with their foreign supervisor. During the audit discussions, the peers gain the impression that the PhD candidates are able to communicate in English as well. Nevertheless, they recommend ATU to enhance the English level during the PhD programmes.

Criterion 2.4 Contents

Evidence:

- Objective-Module Matrices for the five PhD programmes
- Curricula of the five PhD programmes
- Module descriptions for the five PhD programmes

- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

The five PhD programmes under review have a duration of six semesters (180 ECTS), of which the first semester is devoted to theoretical subject-related courses (30 ECTS) while the remaining five semesters allow the PhD candidates to work on their research. In the second semester, the candidates are also offered the course “Pedagogical Practice” (3 ECTS) to gather pedagogical knowledge. In total, the candidates obtain 33 ECTS for theoretical courses and 147 ECTS for scientific and research courses. The theoretical courses are taught in class or in lectures during the first semester.

The modules in the curricula of the five PhD programmes consist of basic courses (BC), special courses (SC) and deepened specialized knowledge courses (DSKC). The curricula for the PhD programmes allocate ECTS credits for the educational courses at ATU. However, the curriculum does not state which modules belong to basic courses, special courses, and deepened specialized knowledge courses. This categorization is merely done by the objective-module matrices, which allocates the modules to the different kinds of courses. As demonstrated by the objective-module matrices, the different types of courses educate the PhD candidates with general cultural competences (GCC), general professional competences (GPC) and professional competencies (PC). In the following paragraphs, the course names from the curricula are used.

The PhD candidates can choose different trajectories in all PhD programmes. However, the university does not outline the names of these trajectories, because they depend on the individual preferences of the PhD candidates. The auditors reason that the names of the trajectories are based on the different study content in the first semesters and differ from candidate to candidate. For example, one trajectory of the PhD programme TFP offers candidates theoretical courses during the first semester such as “Methods of Teaching Engineering Disciplines” or “Biotechnological Methods of Increase of Food Value of Meat Products”. A second trajectory includes different theoretical courses, for example “Technologies and Methodology of Teaching of Technical Disciplines in Higher Educational Establishment” or “Biotechnology of Production of Pastes, Cheeses, Dry Products”. The courses “The Theory of Food Technology” and “Scientific Research Work of PhD student” are taught in both trajectories.

The PhD programme CPT also offers different trajectories. One trajectory includes theoretical courses in the first semester, for example “Electrophysical Methods of Grain Processing

at Elevators and Grain Processing Enterprises” or “Biotechnological Bases of Food Production”. The second educational trajectory – “Technology of Bread, Pasta and Confectionery” offers different courses, for example “System analysis of Technological Processes of Crop Production Processing” or “Biotechnological Bases of Production of Bakery, Pasta and Flour Confectionery”. However, the courses “Theory of Technology of Storage and Processing of Production of Plant Growing” and “Scientific Research Work of PhD student” are offered in both trajectories.

As mentioned above, the PhD programmes TDLIP, TDTM and SNFGP have theoretical and subject-related courses during the first semester, a course about pedagogical practice in the second semester as well as courses about scientific research in the remaining semester. The curriculum for these three PhD programmes mainly differs in the first semester. In the PhD programme TDLIP, the first semester includes courses, such as “Methodological Bases of Design of Special Clothes” and “Modern Equipment and Production Technology”, while the PhD programme TDTM consists of several subject-related courses, for instance “Scientific Bases of Designing the Structure and Properties of Textile Materials”, “Innovative Technologies of Receiving Nonwoven Fabrics” and “Chemical Fiber Based Reproducible Plant Material”. Similarly, the first semester of the PhD programme SNFGP differs from the other programmes in the first semester since it involves courses such as “The Theory of Quality and Safety of Non-Food Goods and Products”, “Scientific Bases of Creation of Safe Materials for Nonfoods” and “The Theory of Quality and Safety of Non-Food Goods and Products”. Nevertheless, these three PhD programmes also have a common ground since the course “Scientific Research Work of PhD student” is offered in each curriculum.

Overall, the peers argue that the curriculum implements the intended qualifications objectives of the PhD programmes.

Final assessment of the peers after the comment of the Provider regarding criterion 2:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as not fulfilled as more detailed descriptions of the educational objectives need to be made available. Furthermore, the internship regulations must define the length of an internship.

3. Courses/Modules: Structures, Methods and Implementation

Criterion 3.1 Structure

Evidence:

- Curricula of the five PhD programmes
- Module descriptions for the five PhD programmes
- Self-Assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives

Preliminary assessment and analysis of the peers:

The five PhD programmes have a duration of six semesters (180 ECTS) and can be studied in full time only. Each semester allocates 30 ECTS credits and entails 15 weeks of study. While the first semester includes theoretical courses about subject-related contents, a course about scientific research and a course about pedagogical practice in the second semester, the remaining semester provide candidates with the opportunity to concentrate on their individual research. The PhD candidates set up an individual plan with their domestic supervisor, which is consistent with the candidates' research. During the audit discussions, the candidates confirm that they value the close contact with the domestic supervisor to set up an individual study plan as well as the overall structure of the programme with its clear focus on research.

ATU has provided a module handbook for the PhD programmes that entails all modules taught in the programme. The peers are very satisfied with the individual descriptions, which entail all relevant information, such as the number of credits, the language of instruction, the responsible lecturer and module coordinator, the prerequisites, the examination, the learning outcomes as well as the content of the module. The peers are generally satisfied with the module descriptions as they adequately reflect the contents and learning outcomes.

The peers detect that the module names in the module descriptions are not identical to the names of the courses in the curricula. According to the peers, their titles differ slightly from the titles used in the curriculum but that may be due to translation errors. Thus, the auditors urge ATU to state the same course names in the curricula and in the module descriptions. In this context, the auditors detect that the module descriptions do not have a module code at all. In essence, a module code is not given to the entire module, but to each individual course in the module descriptions. For instance, the courses "Chemical Fiber

Based Reproducible Plant Material” (code: NVOVRS 7301) and “Innovations in Materials and Products of Textile and Light Industry” (code: IMITLP 7301) have two different module codes in the module descriptions of the PhD programme TDTM although they are listed as a module in the curriculum. Therefore, any given module description within the module handbook does not entail the entire module, but rather an individual course of a module. Thus, the auditors argue that ATU has to allocate the same module codes to all courses that form a module.

The PhD candidates have the possibility to spend a semester abroad during their studies. The PhD programmes are connected to the ERASMUS exchange programme. However, the extent of international mobility during the PhD is not very high since the auditors only identify 3 candidates in the PhD programmes under review who spent a semester abroad to work on their research in the Czech Republic and Austria (via ERASMUS). The peers appreciate the university’s readiness to support mobility. Nevertheless, they argue that the ERASMUS programme is not the most suitable exchange programme for PhD candidates; instead, they recommend to apply for the Marie-Curie programme, which is better designed for international exchange of PhD candidates and thus is deemed more adequate to stimulate exchange. In response to that, the International Office of the university confirms that they are already planning to extend the possibilities for PhD candidates to go abroad for research. While Master’s students are able to obtain a grant from the Kazakh Ministry of Education, PhD candidates cannot apply for such a grant. The peers recognize that the number of PhD candidates spending a semester abroad is very low. In contrast to that, all PhD candidates go abroad for a compulsory internship during their studies, giving them the chance to increase the international portion of their research work.

The exchange via internships functions well at ATU since the university has more than 120 collaborations and agreements with universities, research institutes and research centres, for instance in Asia and Europe. In this context, the auditors value that the PhD candidates benefit from the opportunity to undertake internships during the programme. For instance, one PhD candidate gathers practical experience at a company to pursue his/her research since the nature of the company’s business is connected to the candidate’s scientific work. The peers regard this as extremely positive as the company even introduced new products based on the candidate’s research results. In addition to that, the candidates are also able to do an internship at ATU as the university has very good laboratories to conduct experiments (see criterion 5.2).

In summary, the peers appreciate the focus on research during the PhD education since the candidates receive many opportunities to work on their individual research. They regard the structure of the PhD programmes as sufficient to achieve the intended learning outcomes. According to the peers, it is very positive that all PhD candidates go abroad to

do an internship. Nevertheless, ATU should improve the possibilities for PhD candidates to spend one semester abroad at a foreign university for research.

Criterion 3.2 Workload

Evidence:

- Module descriptions for the five PhD programmes
- Curricula for the five PhD programmes
- Regulation on Research Work of Doctoral Candidates
- Self-Assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives

Preliminary assessment and analysis of the peers:

The PhD programmes allocate a total amount of 180 ECTS over a study duration of six semesters with 30 ECTS per semester. As outlined in the self-assessment report and discussed with the university representatives, the workload of PhD candidates amounts to a maximum of 57 hours per week. In theory, this weekly workload corresponds to 1 ECTS credit. However, the discussion with the candidates demonstrates that this estimate does not represent the actual workload as the candidates mention a weekly workload of 30 hours. Thus, the peers ask ATU to begin measuring the workload to ensure that workload and awarded credit points match (see criterion 6.2).

Moreover, the curricula demonstrate that ATU allocates weekly classroom hours for lecture lessons, practical lessons, laboratory classes, self-study hours (IWD) and self-study hours with the teacher (IWDWT). The latter are counselling hours that the candidates 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 demand the university to state the number of hours of laboratory and practical classes in the curricula and in the module descriptions. Generally, the laboratory hours refer to the practical research work, conducted in the university's laboratories. Since the PhD programmes strongly focus on research, with experiments conducted in research laboratories, ATU has to define the number of weekly hours spent in the laboratories in a transparent manner.

Overall, the peers urge the university to measure the workload. ATU needs to reconsider their estimates for the workload and distribute student surveys asking the candidates

about their real workload per week. During the audit discussions, the peers do not comprehend the workload as indicated by the self-assessment report. In this context, the auditors stress that the university must define the length of the academic year since the peers gain the impression that the university does not have a common comprehension about that. The proper definition of the length of the academic year is required to be able to measure the workload in a consistent way.

Criterion 3.3 Teaching methodology

Evidence:

- Module descriptions for the five PhD programmes
- Examples of Publications of Doctoral Candidates (in English)
- Links to Publications of Academic Staff at ATU: <https://fpp.atu.kz/en/home/department-technology-of-bread-products-and-processing-industries/research-work>
- Links to the annual international scientific conferences at ATU, accessible via <https://atu.kz/en/home/science/conferences-and-competitions/conferences>
- Self-Assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives

Preliminary assessment and analysis of the peers:

The self-assessment report outlines that the applied teaching methods comprise theoretical and informational teaching methods, practical operating methods of training, search and creative teaching methods, methods of independent work of candidates as well as control and evaluation methods. The peers obtain a good overview of the different teaching methods utilized by ATU since they are described in detail in the self-assessment report. The peers gain the impression that the PhD education benefits from a very close exchange between the PhD candidates and the domestic academic advisors since the number of the candidates in the PhD programmes ranges from 0 to 15 (see criterion 2.2). The low number of candidates in the PhD programmes facilitates a very individualized tutoring approach. While the first semester of the PhD curricula provides the theoretical foundations for the candidates' research work, the classical didactic methods, for instance lectures, classroom lessons and seminars, are applied. In the course of the study, the PhD candidates do internships to work on research projects whereas others conduct laboratory experiments at ATU. As the candidates are required to publish their own research articles, they hold presentations about their research results during scientific conferences as well. Therefore, the candidates are prepared to defend and discuss their PhD thesis, and learn how to write and to

publish scientific articles. In this context, the auditors appreciate that the PhD candidates actively participate in international scientific conferences by presenting their research findings during these conferences. The presentation of research results is consistent with the fact that the main PhD thesis is accompanied by seven publications during the PhD programmes (see criterion 4). The investigated PhD theses demonstrate good scientific practice. Since the academic staff of ATU even provides educational trainings for candidates of other universities, the peers regard the university as a leading university in Kazakhstan for the respective academic fields on hand.

In summary, the peers appreciate the concept of individualized tutoring and, in connection to that, the possibility to design the content of modules in accordance with the intended scientific research work of the PhD candidates. The peers regard the active participation of PhD candidates in international scientific conferences as very positive since candidates continuously present their research results on these conferences.

Criterion 3.4 Support and assistance

Evidence:

- Regulations on the Practice of Undergraduate and Doctoral PhD
- Regulation on Research Work of Doctoral Students
- Self-Assessment Report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

During the audit discussions, the peers obtain a very positive impression of the support and assistance for doctoral candidates during the PhD programmes. ATU offers its candidates technical support for questions related to the use of technical resources and equipment. The candidates benefit from this support since they conduct experiments in the laboratories for their research work during their studies. The candidates choose the supervisors for their thesis and are allowed to change the supervisor as well. Apart from the good support that PhD candidates obtain from their domestic scientific advisor at ATU, the core of the concept of support and assistance in the PhD programmes is the availability of a foreign supervisor as the candidates have the opportunity to do international research in cooperation with this supervisor. The auditors regard this concept as very valuable since it contributes to the university's ambition to become more international. Nevertheless, they detect a problem with the concept of the foreign supervisor. In practice, the candidates mainly depend on the contacts of their domestic supervisor to find a foreign supervisor. While the peers regard it as positive that ATU has established many collaborations with

approximately 200 research institutions and universities worldwide as well as a cooperation with a Russian university for supervising the PhD candidates, they recommend the university to introduce more methods that simplify the search process for foreign supervisors. For instance, ATU could promote the concept of the foreign supervisor at international conferences at ATU and invite more international professors to international conferences and as guest lecturers.

Final assessment of the peers after the comment of the Provider regarding criterion 3:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as not fulfilled as the module handbooks need to be revised with regard to module and course names, module codes and contact hours for laboratory and practical classes.

4. Examination: System, Policy and Forms

Criterion 4 Exams: System, policy and forms
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Evidence:

- Regulations on the Practice of Undergraduate and Doctoral PhD
- Regulation on Research Work of Doctoral Students
- Module handbooks for the five PhD programmes
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives
- Examples of Publications of Doctoral Candidates (in English)
- Self-Assessment Report

Preliminary assessment and analysis of the peers:

The module handbook includes the module descriptions, which inform about the forms of assessment in each module. During the semester, there are short test surveys, individual homework assignments and intermediate control exams. Furthermore, there is a written final exam as well. In addition to that, at the end of each semester, the PhD candidates present a scientific report in front of a commission to defend the current state of their scientific work. Apart from the commission, other professors, other PhD candidates and interested academic staff of the department can attend this presentation. The peers reason that it is rather unusual to have this many exams during a PhD programme (compared to European standards). However, they accept the different kinds of examinations during the modules since the course content focuses on the PhD candidates' individual scientific work

and thesis. They appreciate that candidates have to present the current state of their research at the end of each semester.

The peers inspect the exams during the on-site visit as well. They conclude that the questions of the PhD exams are more scientific and more research-oriented than during a Master's degree programme. However, the exams questions are taken from a catalogue of questions that is known to the candidates in advance. According to the auditors, the practice of posing known questions in PhD exams must be changed to increase the level of complexity of PhD exams. Overall, the academic level of exams has to be raised to be consistent with Level 8 of EQF.

The academic level of the PhD theses is satisfying for the auditors. The auditors regard all research topics as current state of the art as they belong to relevant topics of this academic field. For instance, research is done about the development of meat technology, the production of beer and gluten-free food products. The peers conclude that the PhD researchers use several metrics to measure their scientific results. The inspected PhD theses demonstrate very good scientific practice. In this context, they reason that experimentally oriented research work requires a thorough and critical analysis and interpretation of data. According to the auditors, research results with great statistical variation have to be examined in greater depth by applying several metrics and variables. The auditors stress this point since they gain the impression that the inspected PhD theses should improve this scientific practice and focus on investigating these statistical variations further. Furthermore, the auditors value that the university presents a publication of a PhD thesis in "Scopus"-referenced international journals, which meets international scientific standards. The peers acknowledge this and regard this publication as a proof for the good scientific practice at ATU. Other PhD theses are published in domestic journals and in journals of the Kazakh Ministry of Education and thus meet Kazakh scientific standards. Overall, the auditors reason that the academic level of the PhD theses is sufficient to achieve the intended learning outcomes of the programme. ATU aims at achieving good scientific standards, which is underlined by the fact that the main PhD thesis is accompanied by at least seven research publications, of which one publication has to be in an international journal.

Furthermore, the quality of supervision during the PhD programme is very good since only professors are responsible for the supervision. These professors are required to have a Hirsch index of 2 to become supervisor for a PhD thesis, implying that they have already published several research articles in the past. The auditors appreciate the very close collaboration between the domestic supervisor and the PhD candidates. For instance, the candidates continuously conduct experiments, receiving assistance by the supervisor as well. The candidates also confirm that they are satisfied with the supervision during their thesis.

The fact that a second foreign supervisor is required helps the candidates to do their research on an international scale. Taking into account the research publications of ATU's academic staff and several publications of doctoral candidates, the peers regard the academic staff at ATU as highly qualified to assist the PhD candidates as supervisors in their research work.

A continuous quality assurance of the PhD is in place since the supervision of PhD candidates not only takes place during the course of the programme, but also at the final stage, after the completion of the PhD thesis. In essence, the peers detect that ATU has a very thorough quality assurance system for the review process of the PhD thesis. Firstly, there is an internal review with two professors from the department. Secondly, the review is performed at an external level by a domestic and an international professor. It is compulsory to have at least one international reviewer for the PhD thesis. Thirdly, the final defence of the PhD thesis is held in front of a dissertation council, consisting of a professor and an industry expert. By reviewing the PhD thesis, the dissertation council ensures the high quality of PhD theses at ATU. The peers regard this as a very positive aspect since the majority of universities in Kazakhstan does not have a dissertation council at all. Furthermore, ATU has a software programme that checks plagiarism in the three languages Russian, Kazakh and English for all PhD theses. Subsequent to this check, the PhD candidates obtain a certificate about the plagiarism test.

Overall, the peers acknowledge that the PhD exams are research-oriented and more scientific than during a Master's degree programme. However, they ask the university to raise the level of complexity of the exams. According to the peers, the PhD theses demonstrate very good scientific standards and underlie a very thorough quality assurance process consisting of several internal and external reviewers.

Final assessment of the peers after the comment of the Provider regarding criterion 4:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as not fulfilled as exams do not correspond with the academic level expected from a PhD.

5. Resources

Criterion 5.1 Staff

Evidence:

- Staff Handbook for the five PhD programmes

- List of research undertaken by the academic staff
- List of collaborations with external partners undertaken by the academic staff
- Table about teaching staff involved in the realization of five Master's degree programs (p. 55, self-assessment report)
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff, candidates, alumni and industry representatives

Preliminary assessment and analysis of the peers:

The peers welcome the staff handbook for each PhD programme and confirm that the composition of the teaching body ensures that the intended learning outcomes are achieved by the time the degree is completed. ATU aims at employing Professors with a Doctor of Science and Associate Professors who are candidates for a Doctor of Science and Professors from foreign universities. The peers appreciate that ATU recruits teaching staff who have an academic title that is higher than a PhD. The five PhD programmes are supported by 18 Professors (with a Doctor of Science), 29 Associate Professors (who are candidate for a Doctor of Science), 16 teachers with a PhD and 57 other teachers who are involved in lecturing and other educational tasks, for instance in advising candidates during their PhD research. These other teachers are also foreign professors and specialized experts from the industry. Some of the other teachers work in part-time as well. The auditors recommend the university to ensure that these teachers also supervise the PhD candidates' research work adequately.

Taking into account the recruitment process of the academic staff, the peers conclude that ATU executes a competitive selection procedure to employ professors from other universities, research institutions and private companies. Based on Kazakh law, the total number of teaching staff is calculated based on the average ratio of candidates per teacher and is equal to 8/1. This ratio is computed by dividing the average number of candidates by teachers. In this context, the ratio indicates that there is 1 professor to teach 8 candidates. Since there are currently 34 PhD candidates, the number of teaching staff is sufficient.

Criterion 5.2 Institutional setting, funding and equipment

Evidence:

- Self-Assessment Report
- Table of funds for each of the five PhD programmes from 2014 to 2019 (p. 87 - 92, self-assessment report)
- Visit of laboratories

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

Preliminary assessment and analysis of the peers:

The university provides a detailed table about the funds for each of the five PhD programmes. This table shows the allocation of funds for staff remuneration, material resources, and investments as well as for the purchase of large equipment from 2014 to 2019. Thus, the peers receive a good overview of the allocation of the university's funds and conclude that the funds are sufficient to maintain the teaching and research capacity at ATU.

During the audit discussions with the faculty management, the peers ask to which degree the university receives money from the government, candidates or other external parties. The university informs that 90 % of funds stem from the government while the remaining portion of 10 % stems from student fees or from companies (donated for research projects). While the government funds and the student fees are used for the teaching body and to run the research laboratories, companies provide funds to purchase new equipment. In addition, the Kazakh Ministry of Education also provides state grants to PhD candidates at ATU to support them financially (see criterion 1.1).

The auditors visit the laboratories and training centres for all five PhD programmes and gain a very positive impression of the spaces and the equipment candidates can utilize for their experiments. The inspected laboratories are in very good condition. The candidates confirm that they are satisfied with the laboratories as well; in particular, the PhD candidates appreciate that the university provides access to the laboratories during the semester break as well, when the machines in the laboratories are more easily available, giving them the opportunity to conduct experiments for their research. The university also provides training courses for PhD candidates who did their Master's degree at another university and thus do not know how to use the laboratory equipment and machines. Especially for the practical education, a lot of modern and up-to-date equipment and laboratories are available and actively used in the five PhD programmes.

During the visit of the laboratories, the peers find out that ATU promotes new research areas as well. ATU has very innovative and useful research projects for the future: there is research on fire-proof uniforms for fire workers, beer production with new malt technology, research about the development of meat production technology, research on gluten-free food products and research about the characteristics of textile materials (since Kazakhstan has many different raw materials used for textiles). In addition to that, the university plans to purchase a new plant for malt production as ATU wants to increase its research in this field. In this context, the peers appreciate that the scientific experiments with beer and

malt take place in cooperation with the Kazakh beer company “Efes”. The auditors regard the above-mentioned research topics as highly relevant in the respective academic field.

Overall, they draw the conclusion that the university’s equipment and laboratories are adequate to support the PhD candidates in finalizing their scientific and practically oriented research work.

Final assessment of the peers after the comment of the Provider regarding criterion 5:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as fulfilled.

6. Quality Management: Development and Enhancement

Criterion 6.1 Quality assurance & enhancement

Evidence:

- Regulations on Monitoring and Evaluation of Educational Achievements of Students
- Code of Academic Integrity at ATU
- Certificate of the Quality Management System at ATU
- Rating System of Assessment of Department and Faculty Activities at ATU
- Table about the position of PhD graduates in the labour market from 2015 to 2019 (p. 100, self-assessment report)
- Table about the academic progress of candidates from 2015 to 2019 (p. 99, self-assessment report)
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

The auditors understand that the university has a quality management system in place, including a variety of internal actions and external assessment procedures designed to enhance the quality of the PhD programmes under review. ATU’s quality management system has elements of internal quality measures including student, graduate, employer, and instructor feedback mechanisms. As defined in the University’s “Rating System of Assessment of Department and Faculty Activities”, the student surveys are distributed with a computer questionnaire and the results are sent to the deans of the respective faculty for further analysis. The candidates also fill out an anonymous questionnaire to indicate the

level of satisfaction with the PhD supervision during the programme. Moreover, there is an exchange between industry and university about the PhD programmes which serves as an external assessment via industry peers.

The peers regard it as very positive that ATU provides an overview of the academic progress. After the audit, ATU provides a table with the number of candidates for each PhD programme for the recent five years from 2015 to 2019. The peers are satisfied with the submitted data and see no reason for criticism.

Criterion 6.2 Instruments, data and methods
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Evidence:

- Regulations on Monitoring and Evaluation of Educational Achievements of Candidates
- Code of Academic Integrity at ATU
- Certificate of the Quality Management System at ATU
- Rating System of Assessment of Department and Faculty Activities at ATU
- Table about the position of PhD graduates in the labour market from 2015 to 2019 (p. 100, self-assessment report)
- Table about the academic progress of candidates from 2015 to 2019 (p. 99, self-assessment report)
- Self-assessment report
- Discussions with representatives of faculty management, programme coordinators, teaching staff and candidates

Preliminary assessment and analysis of the peers:

The system of quality management for the five PhD programmes under review has been described in a detailed manner under criterion 6.1.

The peers pose specific questions about the workload during the audit discussions since the peers regard the workload of 57 hours per week (as indicated in the self-assessment report) as too high. The programme coordinators explain that the workload amounts to a maximum of 57 hours per week whereas the PhD candidates indicate that there are only 30 hours per week. Due to this large discrepancy between the workload hours, the peers reason that ATU does not measure the workload accurately. Consequently, they require the university to measure the workload more accurately as the current measurement does not correspond to the real workload (see criterion 3.2). ATU should clarify the workload of the PhD candidates and put it in context with international standards. After the audit, ATU

submits a sample questionnaire that is available in the UNIVER 2.0 system: <http://univer.atu.kz>. The peers note that ATU does not ask the candidates about their workload. Thus, the peers urge the university to find out about the PhD candidates' total workload e.g. by including a corresponding question in the questionnaire.

Final assessment of the peers after the comment of the Provider regarding criterion 6:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as not fulfilled as the workload needs to be monitored.

7. Documentation & Transparency

Criterion 7.1 Relevant documents

Evidence:

- Curricula for the five PhD programmes
- Module descriptions for the five PhD programmes
- Regulation on the Organization of Professional Practice
- Regulation on Research Work of Doctoral Students
- Regulation on the Board of Trustees
- Regulations on the Academic Committee and the Subcommittees on Educational Programs
- Regulations on Monitoring and Evaluation of Educational Achievements of Students
- Regulation on the Practice of Undergraduates and Doctoral PhD
- Rating System of Assessment of Department and Faculty Activities at ATU
- Rules to Studies in Educational Organizations that implement vocational education programmes of postgraduate educated
- Examples of Publications of Doctoral Candidates (in English)
- Links to Publications of Academic Staff at ATU
- Links to the annual international scientific conferences at ATU, accessible via <https://atu.kz/en/conferences-and-competitions/conferences>

Preliminary assessment and analysis of the peers:

In addition to the self-assessment report, ATU provides all relevant study documents in an English version. The relevant documents are sent as appendices to the self-assessment re-

port and as additional supplements. As written under criterion 2.2, a document about internship regulations is still missing. Additionally, the peers detect that the programme related documents (study regulations, exam regulations, module descriptions, curricula, internship regulations) of the PhD programmes are not available on the English website of ATU. Due to the university's ambition to become an internationally recognized university, the peers regard it as extremely important to publish the relevant documents in English on the website as fast as possible.

Criterion 7.2 Certificate upon conclusion
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Evidence:

- Self-assessment report
- Example of a PhD certificate

Preliminary assessment and analysis of the peers:

The university provides an example of a PhD certificate during the audit discussion. The relevant information about the PhD candidates' name and the academic level of the degree programme is provided in English whereas the remaining information is written in Kazakh. According to the auditors, ATU has to hand in an English PhD certificate to increase transparency for foreign PhD candidates. In addition to the PhD certificate, it is advisable to also issue a diploma supplement containing detailed information about educational objectives, intended learning outcomes, the structure of the PhD programme as well as about the individual performance of the candidate. Furthermore, the diploma supplement should encompass fundamental information about the national higher education system in Kazakhstan.

Final assessment of the peers after the comment of the Provider regarding criterion 7:

ATU does not comment on this criterion. The peers confirm their initial assessment and regard the criterion as fulfilled.

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 provider on the previous chapters of this report:

- none

E Comment of the Provider

As additional documents and explanations provided after the audit had already been incorporated in the report sent to ATU, the institution refrained from further comment.

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 ASIIN certificate as follows:

PhD Programme	ASIIN Certificate	Maximum duration of certification	Alignment to a Qualification Framework Level
Technology of Food Products	With requirements	30.09.2025	8
Crop Processing Technology	With requirements	30.09.2025	8
Technology and Design of Light Industry Products	With requirements	30.09.2025	8
Technology and Design of Textile Materials	With requirements	30.09.2025	8
Safety of Non-Food Goods and Products	With requirements	30.09.2025	8

Requirements

For all programmes

- A 1. (ASIIN 2.1) Draft the learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the programme.
- A 2. (ASIIN 2.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.
- A 3. (ASIIN 2.2) Define the length of an internship in the internship regulations.
- A 4. (ASIIN 2.2) Collect data on graduates' employment status to verify that the programmes are relevant for the labour market.
- A 5. (ASIIN 3.1) Use the same names for modules in the module descriptions and in the curricula.
- A 6. (ASIIN 3.1) Allocate a module code to each module.

-
- A 7. (ASIIN 3.2) Indicate the number of student working hours for laboratory and practical classes.
 - A 8. (ASIIN 4) Ensure that exams correspond to EQF level 8.
 - A 9. (ASIIN 6.2) Measure PhD candidates' workload and verify that it corresponds with the number of ECTS credits awarded.

Recommendations

For all programmes

- E 1. (ASIIN 2.1) Improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.
- E 2. (ASIIN 2.3) Offer students more opportunities to increase their English language skills.
- E 3. (ASIIN 3.4) Increase measures to recruit foreign thesis supervisors.
- E 4. (ASIIN 4) Improve the academic level of PhD theses by examining statistical variations of research results in greater depth.
- E 5. (ASIIN 7.1) Issue a certificate containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme and the graduate's individual performance. Append a diploma supplement containing fundamental information about the national higher education system.
- E 6. (ASIIN 7.1) Make all relevant study documents available online in English for external stakeholders.

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 certificate:

The Technical Committee notes that the peers criticized the level of exams, whereas the theses were judged to be adequate. They suggest that ATU should outline an examination system that adequately tests PhD candidates' skills and knowledge and reflects EQF level 8. In all other matters they agree with the peers.

The Technical Committee 01 – Mechanical Engineering/Process Engineering recommends to award the ASIIN certificate as follows:

PhD Programme	ASIIN Certificate	Maximum duration of certification	Alignment to a Qualification Framework Level
Technology of Food Products	With requirements	30.09.2025	8
Crop Processing Technology	With requirements	30.09.2025	8
Technology and Design of Light Industry Products	With requirements	30.09.2025	8
Technology and Design of Textile Materials	With requirements	30.09.2025	8
Safety of Non-Food Goods and Products	With requirements	30.09.2025	8

Requirements

For all programmes

- A 1. (ASIIN 2.1) Draft the learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the programme.
- A 2. (ASIIN 2.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

- A 3. (ASIIN 2.2) Define the length of an internship in the internship regulations.
- A 4. (ASIIN 2.2) Collect data on graduates' employment status to verify that the programmes are relevant for the labour market.
- A 5. (ASIIN 3.1) Use the same names for modules in the module descriptions and in the curricula.
- A 6. (ASIIN 3.1) Allocate a module code to each module.
- A 7. (ASIIN 3.2) Indicate the number of student working hours for laboratory and practical classes.
- A 8. (ASIIN 4) Provide a concept that demonstrates how EQF level 8 is to be achieved in the exams.
- A 9. (ASIIN 6.2) Measure PhD candidates' workload and verify that it corresponds with the number of ECTS credits awarded.

Recommendations

For all programmes

- E 1. (ASIIN 2.1) Improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.
- E 2. (ASIIN 2.3) Offer students more opportunities to increase their English language skills.
- E 3. (ASIIN 3.4) Increase measures to recruit foreign thesis supervisors.
- E 4. (ASIIN 4) Improve the academic level of PhD theses by examining statistical variations of research results in greater depth.
- E 5. (ASIIN 7.1) Issue a certificate containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme and the graduate's individual performance. Append a diploma supplement containing fundamental information about the national higher education system.
- E 6. (ASIIN 7.1) Make all relevant study documents available online in English for external stakeholders.

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

Assessment and analysis for the award of the ASIIN certificate:

The Technical Committee agrees with the peers' assessment.

The Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture recommends to award the ASIIN certificate as follows:

PhD Programme	ASIIN Certificate	Maximum duration of certification	Alignment to a Qualification Framework Level
Technology of Food Products	With requirements	30.09.2025	8
Crop Processing Technology	With requirements	30.09.2025	8

H Decision of the Accreditation Commission (26.06.2020)

Assessment and analysis for the award of the ASIIN Certificate:

The Accreditation Commission agrees with the peers' assessment. They merely change the wording of requirement A8, stressing that the academic level of exams needs to be substantiated.

The Accreditation Commission decides to award the ASIIN certificate as follows:

PhD Programme	ASIIN Certificate	Maximum duration of certification	Alignment to a Qualification Framework Level
Technology of Food Products	With requirements	30.09.2025	8
Crop Processing Technology	With requirements	30.09.2025	8
Technology and Design of Light Industry Products	With requirements	30.09.2025	8
Technology and Design of Textile Materials	With requirements	30.09.2025	8
Safety of Non-Food Goods and Products	With requirements	30.09.2025	8

Requirements

For all programmes

- A 1. (ASIIN 2.1) Draft the learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the programme.
- A 2. (ASIIN 2.1) Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.
- A 3. (ASIIN 2.2) Define the length of an internship in the internship regulations.
- A 4. (ASIIN 2.2) Collect data on graduates' employment status to verify that the programmes are relevant for the labour market.

- A 5. (ASIIN 3.1) Use the same names for modules in the module descriptions and in the curricula.
- A 6. (ASIIN 3.1) Allocate a module code to each module.
- A 7. (ASIIN 3.2) Indicate the number of student working hours for laboratory and practical classes.
- A 8. (ASIIN 4) Provide evidence that exams correspond to EQF level 8.
- A 9. (ASIIN 6.2) Measure PhD candidates' workload and verify that it corresponds with the number of ECTS credits awarded.

Recommendations

For all programmes

- E 1. (ASIIN 2.1) Improve the opportunities for students to complete a stay at a different higher education institution without any prolongation of their studies.
- E 2. (ASIIN 2.3) Offer students more opportunities to increase their English language skills.
- E 3. (ASIIN 3.4) Increase measures to recruit foreign thesis supervisors.
- E 4. (ASIIN 4) Improve the academic level of PhD theses by examining statistical variations of research results in greater depth.
- E 5. (ASIIN 7.1) Issue a certificate containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme and the graduate's individual performance. Append a diploma supplement containing fundamental information about the national higher education system.
- E 6. (ASIIN 7.1) Make all relevant study documents available online in English for external stakeholders.

A Fulfillment of Requirement (18.06.2021)

Assessment and analysis for the award of the ASIIN Certificate:

The Accreditation Commission agrees with the assessment of the peers and of the Technical Committee that all requirements are fulfilled.

The Accreditation Commission decides to award the ASIIN certificate as follows:

PhD Programme	ASIIN Certificate	Maximum duration of certification	Alignment to a Qualification Framework Level
Technology of Food Products	All requirements fulfilled	30.09.2025	8
Crop Processing Technology	All requirements fulfilled	30.09.2025	8
Technology and Design of Light Industry Products	All requirements fulfilled	30.09.2025	8
Technology and Design of Textile Materials	All requirements fulfilled	30.09.2025	8
Safety of Non-Food Goods and Products	All requirements fulfilled	30.09.2025	8

Appendix: Programme Learning Outcomes and Curricula

For the PhD programme Technology of Food Products (TFP), the self-assessment report states the following **intended learning outcomes**:


- training of scientific-pedagogical and leading personnel of the highest qualification
- organization of participation of candidates in fundamental and applied scientific research aimed at solving urgent social and economic problems of the state and the region, including in the field of education, using the results obtained in the educational process, developing scientific and pedagogical schools
- the formation of scientific thinking based on professional skills, the realization of creative potential and the acquisition of additional knowledge in the specialty

Competence codes	Competency statement
General cultural competences GCC	
GCC 1	Has the skills of pedagogical skills, uses innovative educational technologies in teaching
GCC 2	Owens general scientific methodology and scientific-theoretical apparatus of technical science; independently conducts and analyzes the research work of a doctoral student
GCC 3	Able to analyze and interpret information flows in the professional areas of knowledge of the Theory of Food Products, Theory and Practice
GCC 4	Demonstrates the desire for continuous personal development and improvement of scientific and pedagogical skills pedagogical and research practice
General Professional Competences GPC	
GPC 1	Demonstrates in-depth knowledge of the theory of food technology
GPC 2	Owens the methods of creating and using models to describe and predict various processes and phenomena, while carrying out their qualitative and quantitative analysis and synthesis
GPC 3	Discusses the latest advances in technology and technology and the prospects for their use in food production
GPC 4	Able to improve existing research methods and develop new methods based on the objectives of a specific study
GPC 5	Expresses judgment and makes recommendations on the results of scientific research at conferences, symposia and congresses.


Professional competencies PC	
PC 1	Analyzes and discusses the main directions of the scientific and technical development of food production
PC 2	Discusses the principles of system design of food production processes, methodological approaches to the development of food technology
PC 3	Analyzes and makes a judgment about the principles of the innovative food production technology
PC 4	Conducts a comparative analysis of qualitative and quantitative indicators of raw materials and food products on the basis of a methodological approach, theoretical knowledge and practical experience.

The following **curriculum/teaching design** is presented for the educational trajectory 1² of the PhD Programme Technology of Food Products (TFP):

**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
T.K. Kulazhanov
2018

CURRICULUM
 PhD doctorate on specialty of
6D072700 – TECHNOLOGY OF FOOD PRODUCTION
Trajectory 1

Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
The theory of Food Technology	150	5	2	1		1,5	5,5
Methods of teaching engineering disciplines	150	5	2	1		1,5	5,5
Theory and practice of processing of meat raw material	150	5	2	1		1,5	5,5
Biotechnological methods of increase of food value of meat products	150	5	2	1		1,5	5,5
Research and practice bases of canning of food products	150	5	2	1		1,5	5,5
Scientific research	150	5				1	9

² The educational trajectories depend on the doctoral students' modules selection. The choice of modules depends on the research topic and the interests of the doctoral candidate.

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
work of PhD student							
Total for 1st semester	900	30	10	5	0	8,5	36,5
2nd semester							
Pedagogical practice	90	3				1	5
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	390	13				1	25
Total for 2nd semester	900	30	0	0	0	3	57
3rd semester							
Research practice	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	240	8				1	15
Total for 3rd semester	900	30	0	0	0	3	57
4th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 5th semester	900	30	0	0	0	2	58
6th semester							
Scientific research work of PhD student	420	14				1	27
Complex examination							
Formalization and the Doctor thesis defense	480	16				1	31

Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Total for 6 th semester	900	30	0	0	0	2	58
Total	5400	180	10	5	0	20,5	324,5

Vice-rector for Science and Innovations

Rskeldiev B.A.

Head of Postgraduate Education

Koshbaeva L.M.

Head of department

Tayeva A.M.

The following **curriculum/teaching design** is presented for the educational trajectory 2 of the PhD Programme Technology of Food Products (TFP):

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

«AGREED»
Chairman of the Board of Trustees
M.D. Sabralieva
M.D. Sabralieva
2018

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CURRICULUM
PhD doctorate on specialty of
6D072700 – TECHNOLOGY OF FOOD PRODUCTION
Trajectory 2

Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
The theory of Food Technology	150	5	2	1		1,5	5,5
Technologies and methodology of teaching of technical disciplines are in higher educational establishment	150	5	2	1		1,5	5,5
Theory and practice of processing of suckling raw material	150	5	2	1		1,5	5,5
Biotechnology of production of pastes, cheeses, dry products	150	5	2	1		1,5	5,5
Theoretical bases of resource to technology	150	5	2	1		1,5	5,5

Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Scientific research work of PhD student	150	5				1	9
Total for 1st semester	900	30	10	5	0	8,5	36,5
2nd semester							
Pedagogical practice	90	3				1	5
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	390	13				1	25
Total for 2nd semester	900	30	0	0	0	3	57
3rd semester							
Research practice	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	240	8				1	15
Total for 3rd semester	900	30	0	0	0	3	57
4th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 5th semester	900	30	0	0	0	2	58
6th semester							
Scientific research work of PhD student	420	14				1	27
Complex examination Formalization and the Doctor thesis defense	480	16				1	31

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Total for 6 th semester	900	30	0	0	0	2	58
Total	5400	180	10	5	0	20,5	324,5

Vice-rector for Science and Innovations

Rskeldiev B.A.

Head of Postgraduate Education

Koshbaeva L.M.

Head of department

Tayeva A.M.

For the PhD programme Crop Processing Technology (CPT), the self-assessment report states the following **intended learning outcomes**:

- training highly professional, competitive personnel capable of research, teaching, development and implementation of innovations for the sustainable development of the processing industry

Competence codes	Competency statement
General cultural competences GCC	
GCC 1	Knows about current trends and patterns of development of domestic science in the context of globalization and internalization
GCC 2	Knows the methods and means of theoretical and experimental research of technological processes of processing industries
GCC 3	Has skills in owning a system for updating knowledge in the course of his professional activity, ensuring active search and use of new information.
GCC 4	Owens modern methods of planning, organizing experiments, modeling and optimizing technological processes necessary for conducting research work;
GCC 5	Able to use the knowledge of basic sciences in their practical work to solve specific research, information retrieval, methodological problems in various sectors of processing industries
General Professional Competences GPC	
GPC 1	Able to use innovative technologies and equipment in practice
GPC 2	He is able to plan, organize research activities for the study of the physicomachanical, physicochemical properties of raw materials, materials of processing industries, methods of their processing;
GPC 3	Owens modern information technologies, including methods for obtaining, processing and storing scientific information;
GPC 4	Competent in the field of ideological knowledge of the processes of processing industries, the modern system of organization of processing industries and financing research
Professional competencies PC	
PC 1	Knows the methods of designing technological processes that ensure the production of competitive products
PC 2	Able to analyze, evaluate and compare various theoretical concepts in the field of research on the technology of processing industries
PC 3	Owens modern methods of mathematical analysis and probabilistic models for technological processes and carry out the necessary calculations within the framework of the constructed model
PC 4	Competent in using the achievements of nano- and biotechnology in scientific research on the creation of new functional products of processing industries

The following **curriculum/teaching design** is presented for the educational trajectory 1 - Processing Technology, Storage and Processing of Grain of the PhD Programme Crop Processing Technology (CPT):

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T.K. Kulazhanov
2018

CURRICULUM
PhD doctorate on specialty of
6D072800 - CROP PROCESSING TECHNOLOGY
Trajectory 1

Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
Theory of technology of storage and processing of production of plant growing	150	5	2	1		1,5	5,5
Electrophysical methods of grain processing at elevators and grain processing enterprises	180	6	2	2		1,5	5,5
System analysis of technological processes of processing and processing of products of grain processing industries	180	6	2	2		1,5	5,5
Biotechnological bases of food production	180	6	2	2		1,5	5,5
Scientific research work of PhD student	210	7				1	9
Total for 1st semester	900	30	8	7	0	7	31


Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
2nd semester							
Pedagogical practice	90	3				1	5
Execution of doctoral thesis	390	13				1	25
Scientific research work of PhD student	420	14				1	27
Total for 2nd semester	900	30			0	3	57
3rd semester							
Research practice	240	8				1	15
Execution of doctoral thesis	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Total for 3rd semester	900	30			0	3	57
4th semester							
Scientific research work of PhD student	390	13				1	27
Execution of doctoral thesis	510	17				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	480	16				1	27
Execution of doctoral thesis	420	14				1	31
Total for 5th semester	900	30	0	0	0	2	58
6th semester							
Scientific research work of PhD student	420	14				1	27
Complex examination	480	16					
Formalization and the						1	31


The following **curriculum/teaching design** is presented for the educational trajectory 2 - Technology of Bread, Pasta and Confectionery of the PhD Programme Crop Processing Technology (CPT):

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CURRICULUM
PhD doctorate on specialty of
6D072800 - CROP PROCESSING TECHNOLOGY
Trajectory 2

Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
Theory of technology of storage and processing of production of plant growing	150	5	2	1		1,5	5,5
Electrophysical methods of grain processing at processing plants	180	6	2	2		1,5	5,5
System analysis of technological processes of crop production processing.	180	6	2	2		1,5	5,5
Biotechnological bases of production of bakery, pasta and flour confectionery	180	6	2	2		1,5	5,5
Scientific research work of PhD student	210	7				1	9
Total for 1st semester	900	30	8	7	0	7	31

Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
2nd semester							
Pedagogical practice	90	3				1	5
Execution of doctoral thesis	390	13				1	25
Scientific research work of PhD student	420	14				1	27
Total for 2nd semester	900	30			0	3	57
3rd semester							
Research practice	240	8				1	15
Execution of doctoral thesis	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Total for 3rd semester	900	30			0	3	57
4th semester							
Scientific research work of PhD student	390	13				1	27
Execution of doctoral thesis	510	17				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	480	16				1	27
Execution of doctoral thesis	420	14				1	31
Total for 5th semester	900	30	0	0	0	2	58
6th semester							
Scientific research work of PhD student	420	14				1	27
Complex examination							
Formalization and the							


Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Doctor thesis defense	480	16				1	31
Total for 6th semester	900	30	0	0	0	2	58
Total	5400	180	8	7	0	19	319

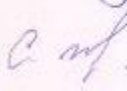
Vice-rector for Science and Innovations

 Rskeldiev B.A.

Head of Postgraduate Education

 Kosherbaeva L.M.

Head of department

 Zhiyenbayeva S.T.

For the PhD programme Technology and Design of Light Industry Products (TDLIP), the self-assessment report states the following **intended learning outcomes**:

- preparation of highly professional scientific and pedagogical and managerial personnel capable of fundamental and relevant applied scientific research, competent in the development and implementation of innovations to ensure the sustainable development of light industry

Competence codes	Competency statement
General cultural competences GCC	
GCC 1	Owens the culture of scientific research, including the methodology of theoretical and experimental research using the latest information and communication technologies
GCC 2	Demonstrates a desire for self-development and adaptation to new economic, social, political and cultural situations
GCC 3	Plans, organizes research activities in the field of light industry
GCC 4	Able to critically evaluate and rethink accumulated experience, to reflect on professional and social activities
General Professional Competences GPC	
GPC 1	Knows about scientific concepts of world and Kazakhstan science in the field of designing products of light industry; about the mechanism of introduction of scientific developments in the practical activities of enterprises; about the norms of interaction in the scientific community; about the pedagogical and scientific ethics of a research scientist
GPC 2	Able to use the basic methods of scientific knowledge and methods of mathematical analysis and modeling, theoretical professional knowledge to solve professional problems
GPC 3	Able to communicate in a professional environment and in society as a whole based on free communication in a foreign language, skills of scientific writing and presentations, participation in scientific events, fundamental scientific domestic and international projects, leadership and team management
GPC 4	Able to carry out a critical analysis of modern achievements in the field of specialty, identify and formulate relevant scientific problems, independently plan and conduct experimental work, present the results of research in the field of light industry design processes
Professional Competencies PC	
PC 1	Able to develop new indicators of the quality of materials, methods evaluation, design and forecasting, optimization of the parameters of the structure and properties, standardization and management of the quality of materials, instruments and automation methods for assessing the quality of materials and products of light industry
PC 2	Able to conduct patent searches, transfer scientific information using modern information and innovative technologies, apply the protection of intellectual property rights to scientific discoveries and developments

Appendix: Programme Learning Outcomes and Curricula

PC 3	Analyzes the existing technology, technology, design techniques of products of light industry, develop independently design and technical documentation in the computer-aided design system;
PC 4	Demonstrates techniques and methods for the effective use of labor, raw materials, materials and technical equipment; use of modern technology and technology in the production of competitive products of light industry, responsible and creative attitude to scientific and scientific-pedagogical activity.

The following **curriculum/teaching design** is presented for the PhD Programme Technology and Design of Light Industry Products (TDLIP):

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CURRICULUM
PhD doctorate on specialty of
6D072600 – «TECHNOLOGY AND DESIGN OF LIGHT INDUSTRY
PRODUCTS»

Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
Methodology of research studies	150	5	2	1		1,5	5,5
Methodological bases of design of special clothes	150	5	2	1		1,5	5,5
Theoretical principles of planning of clothing on the basis of creative source	150	5	2	1		1,5	5,5
Organization, planning and methodology of scientific researches	150	5	2	1		1,5	5,5
Modern equipment and production technology	150	5	2	1		1,5	5,5
Scientific research work of PhD student	150	5				1	9

Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Total for 1st semester	900	30	10	5	0	8,5	36,5
2nd semester							
Pedagogical practice	90	3				1	5
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	390	13				1	25
Total for 2nd semester	900	30	0	0	0	3	57
3rd semester							
Research practice	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	240	8				1	15
Total for 3rd semester	900	30	0	0	0	3	57
4th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 5th semester	900	30	0	0	0	2	58

For the PhD programme Technology and Design of Textile Materials (TDLIP), the self-assessment report states the following **intended learning outcomes**:


- training of specialists of high fundamental, research and professional level in the field of technology and design of textile materials, capable of scientific and pedagogical, research and management activities in a professional environment

Competence codes	Competency statement
General cultural competences (GCC)	
GCC 1	To demonstrate the presence of a significant amount of scientific knowledge, the general ability to conceptualize, develop and implement projects to create new knowledge and practical skills in relevant areas of the textile industry, to adapt projects to external conditions.
GCC 2	To demonstrate a detailed understanding of techniques used for research and development, to carry out qualified conclusions on complex problems of modern science, generalize and present their ideas and concepts, to make management decisions in a variety of opinions
GCC 3	To use modern methods and technologies of scientific communication, to follow ethical standards, to plan and solve problems of professional development, to think critically and to evaluate problems, approaches and trends reflecting the current state of science, the field of scientific research and the sphere of activity
General Professional Competences GPC	
GPC 1	To build up professional activity, guided by the principles of social responsibility, to make an adequate choice of instrumental methods of scientific research, to develop a model, to interpret the results and to integrate the methods of further research
GPC 2	To organize the work of the research team in the professional area, corresponding to the direction of training
GPC 3	To develop theoretical and applied research and innovative projects at a high level for the development of the textile industry
GPC 4	Willingness for teaching in the main educational programs of higher and postgraduate education, to participate in the work of national and international research teams to solve scientific and educational problems
Professional Competences PC	
PC 1	Ability to carry out research activities in the field of design and production of textile products using modern research methods and information and communication technologies
PC 2	To use the results of research, knowledge of patterns and trends to improve the organizational and economic mechanisms, management methods,


	development of strategies for enterprises, organizations, industry complexes
PC 3	To predict the economic efficiency of technological processes, innovation and technological risks in the introduction of new technologies, measures for the integrated use of raw materials, the replacement of scarce materials and finding ways to recycle production waste, the choice of systems to ensure environmental safety
PC 4	To adapt modern versions of quality management systems to specific production conditions on the basis of international standards, to develop technical control and quality management of textile materials and products

The following **curriculum/teaching design** is presented for the PhD Programme Technology and Design of Textile Materials (TDTM):

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



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2018

CURRICULUM
 PhD doctorate on specialty of
6D073300 – TECHNOLOGY AND DESIGN OF TEXTILE MATERIALS

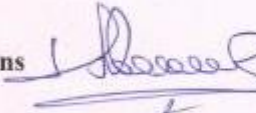
Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWD _v T	IWD
1st semester							
Scientific bases of designing the structure and properties of textile materials	150	5	2	1		1,5	5,5
1. Chemical fiber based reproducible plant material 2. Innovations in materials and products of textile and light industry	150	5	1	2		1,5	5,5
1. Modern problems of modification of natural and synthetic fibrous materials 2. Innovative technologies of receiving nonwoven fabrics	150	5	1	2		1,5	5,5
1. Zol-gel technology of receiving functional nanomaterials 2. Theory and practice of	150	5	1	2		1,5	5,5

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
forecasting of parameters and properties of knitted cloths							
1. Nano-, bio-and information technologies in the development of textile chemistry 2. Innovative methods of studying the structure and properties of textile materials	150	5	1	2		1,5	5,5
Scientific Research Work of PhD student	150	5				1	9
Total for 1st semester	900	30	6	9	0	8,5	36,5
2nd semester							
Pedagogical practice	90	3				1	5
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	390	13				1	25
Total for 2nd semester	900	30	0	0	0	3	57
3rd semester							
Research practice	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	240	8				1	15
Total for 3rd semester	900	30	0	0	0	3	57
4th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 4th semester	900	30	0	0	0	1	58
5th semester							
Scientific research work of PhD student	420	14				1	27

Appendix: Programme Learning Outcomes and Curricula

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
Execution of doctoral thesis	480	16				1	31
Total for 5th semester	900	30	0	0	0	2	58
6th semester							
Scientific research work of PhD student	420	14				1	27
Complex examination	480	16				1	31
Formalization and the Doctor thesis defense							
Total for 6th semester	900	30	0	0	0	2	58
Total	5400	180	6	9	0	20,5	324,5

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

Head of Postgraduate Education  Koshbaeva L.M.

Head of department  Jurinskaya I.M.

For the PhD programme PhD Programme Safety of Non-Food Goods and Products (SNFGP), the self-assessment report states the following **intended learning outcomes**:

- training of competent qualified PhDs in the field of ensuring safety of non-food items and products capable of highly professional work, scientific, educational and research activities


Competence codes	Competency statement
General cultural competences GCC	
GCC 1	To demonstrate knowledge of the methodology of theoretical and experimental research in the field of scientific specialty, to demonstrate culture of scientific research using the latest information and communication technologies
GCC 2	To choose and effectively use the modern methodology of research in the field of creating new materials with safe properties, to apply the achievements of modern science in the field of quality and safety of non-food items and products to improve professional activities
GCC 3	To analyze, evaluate and compare various theoretical concepts in the field of research on safety of light industry products and draw conclusions; to carry out communication and international cooperation in a professional environment, to communicate fluently in a foreign language
General Professional Competences GPC	
GPC 1	To possess theoretical, practical and information bases in the field of safety of non-food goods and products
GPC 2	To demonstrate knowledge of the current situation at the enterprises of light industry, at certification centers on the implementation of the results of innovative technologies for the safety of non-food products
GPC 3	Ability to carry out research activities in the field of safety of production and operation of non-food products using modern research methods and innovative technologies based on international standards
GPC 4	To adapt and summarize the results of modern research in the field of quality and safety of non-food items and products, to successfully carry out research and management activities, to know modern information technologies, including methods of obtaining, processing and storage of scientific information
Professional Competences PC	
PC 1	To create an algorithm for the analysis of production and non-

	production costs to ensure the safety and quality of products, integrate marketing and preparation of business plans for the production and implementation of promising and competitive products
PC 2	To use the results of research, knowledge of patterns and trends of development to work out strategies for the implementation of technical control, quality management and safety of non-food materials and products in the production process
PC 3	To develop draft specifications, standards and technical descriptions of new innovative non-food materials and products, additions to technical regulations, updating and unification of normative documents on standardization
PC 4	To develop theoretical and practical models to predict the properties of non-food items and products, to analyze, synthesize and optimize the processes of quality assurance testing, certification of products using problem-oriented methods


The following **curriculum/teaching design** is presented for the PhD Programme Safety of Non-Food Goods and Products (SNFGP):

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2018



CURRICULUM
PhD doctorate on specialty of
6D073600 - SAFETY OF NONFOOD GOODS AND PRODUCTS
Degree – PhD
Period of education – 3 years

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
1st semester							
The theory of quality and safety of non-food goods and products	150	5	2	1		1,5	5,5
1. Theoretical bases of innovative technologies in the production of goods and products 2. Scientific bases of creation of safe materials for nonfoods	150	5	1	2		1,5	5,5
1. Instrumental methods of a comprehensive assessment of quality textiles 2. Expert methods assess the quality of textile materials	150	5	1	2		1,5	5,5
1. Biological and chemical safety of children's clothing	150	5	1	2		1,5	5,5

Name of module	hours	ECTS	Weekly classroom hours				
			Lecture lessons	Practical lessons	Laboratory classes	IWDwT	IWD
2. Biological damage by non-food items							
1. Theory and practice of creation of safe textile excipients 2. Theory and practice of creation of fireproof textile materials	150	5	1	2		1,5	5,5
Scientific research work of PhD student	150	5				1	9
Total for 1st semester	900	30	6	9	0	8,5	36,5
2nd semester							
Pedagogical practice	90	3				1	5
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	390	13				1	25
Total for 2nd semester	900	30	0	0	0	3	57
3rd semester							
Research practice	240	8				1	15
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	240	8				1	15
Total for 3rd semester	900	30	0	0	0	3	57
4th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 4th semester	900	30	0	0	0	2	58
5th semester							
Scientific research work of PhD student	420	14				1	27
Execution of doctoral thesis	480	16				1	31
Total for 5th semester	900	30	0	0	0	2	58