



ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Biology

Geology and Exploration of Mineral Deposits

Master's Degree Programme

Geology and Exploration of Mineral Deposits

Provided by

Caspian State University of Technologies and Engineering named after S.Yesenov Aktau, Kazakhstan

Version: 31st March 2017

Table of Content

A About the Accreditation Process	3
B Characteristics of the Degree Programmes	5
C Peer Report for the ASIIN Seal	7
1. The Degree Programmes: Concept, content & implementation.....	7
2. The Degree Programmes: Structures, methods and implementation	17
3. Exams: System, concept and organisation.....	21
4. Resources	24
5. Transparency and documentation.....	28
6. Quality management: Quality assessment and development.....	31
D Additional Documents	33
E Comment of the Higher Education Institution (21.12.2016)	34
F Summary: Peer recommendations (16.01.2017)	35
G Comment of the Technical Committees	38
Technical Committee 10 - Life Sciences (16.03.2017)	38
Technical Committee 11 - Geo Sciences (20.03.2017)	38
H Decision of the Accreditation Commission (31.03.2017)	40
Appendix: Programme Learning Outcomes and Curricula	44

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accredita- tion (issu- ing agency, validity)	Involved Technical Commit- tees (TC) ²
Бакалавр/ Биология	Ba Biology	ASIIN	none	10
Геология и разведка/ месторождений полезных ископаемых	Ba Geology and Ex- ploration of Mineral Deposits	ASIIN	none	11
Геология и разведка/ месторождений полезных ископаемых	Ma Geology and Exploration of Min- eral Deposits	ASIIN	none	11
<p>Date of the contract: 06.06.2012</p> <p>Submission of the final version of the self-assessment report: 15.08.2016</p> <p>Date of the onsite visit: 02. – 04.11.2016</p> <p>at: Aktau</p>				
<p>Peer panel:</p> <p>Yekaterina Astafyeva, M. Sc., M.Auezov South Kazakhstan State University, Shymkent</p> <p>Prof. Dr. Andreas Hoppe, University Freiburg</p> <p>Prof. Dr. Thomas Kirnbauer, Technical University of Applied Sciences Georg Agricola Bochum</p> <p>Prof. Dr. Friedhelm Meinhardt, University Muenster</p> <p>Nurlan Mansurov, M. Sc., Nazarbayev University, Astana</p>				

¹ ASIIN Seal for degree programmes

² TC 10 – Life Sciences, TC 11 - Geosciences

A About the Accreditation Process

Representative of the ASIIN headquarter: Rainer Arnold	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of 10.05.2015 ASIIN General Criteria, as of 10.12.2015 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 09.12.2011 Subject-Specific Criteria of Technical Committee 11 – Geosciences as of 09.12.2011	

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 Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ba Biology	Bachelor of Education with speciality in Biology	-	6	Full time/Part time	No	8 Semester	265 ECTS 166 Kazakh Credit Points	Fall term 01.09.2004
Ba Geology and Exploration of Mineral Deposits	Bachelor of Engineering and Technology with speciality in Geology and Exploration of Mineral Deposits	-	6	Full time/Part time	No	8 Semester	265 ECTS 166 Kazakh Credit Points	Fall term 01.09.2004
Ma Geology and Exploration of Mineral Deposits	Master of Engineering and Technology with speciality in Geology and Exploration of Mineral Deposits	-	7	Full time/Part time	No	4 Semester	123 ECTS 99 Kazakh Credit Points	Fall term 01.09.2004

According to the Self Assessment Report, the general purpose of the degree programmes is:

“- training of specialists of new formation, having broad fundamental knowledge, initiative, adapted to the changing demands of the labor market and technologies, able to work in a team;

- creation of conditions for qualitative mastering of professional skills;

- formation of competitiveness of graduates on the labour market,

- developing the learners’ personal qualities that contribute to their creative activity, general cultural growth and social mobility: dedication, organization, hardworking, responsi-

³ EQF = The European Qualifications Framework for lifelong learning

B Characteristics of the Degree Programmes

bility, independence, citizenship, commitment to ethical values, tolerance, persistence in achieving goals, skills of organizational, managerial and project activities.”

“The main requirements to the content of the educational programs are according to their typical educational plans and programs. Specifics of educational programs affect the inclusion of elective disciplines, which collectively affect the formation of learners' professional competences.

The structure of the educational program is formed by the University independently on a collegial basis through coordination with stakeholders, employers, representatives of business communities, learners, Chairpersons of the SAC on the results of final state certification, the apprenticeship. All this is reflected in the catalogue of elective disciplines, which serves as the basis for the formation of individual educational trajectory and individual educational plan of the learner given the expected results, professional competencies and expected places of internships and employment.”

For the Bachelor's degree programme Biology the Caspian State University of Technologies and Engineering has presented the following profile in its Self Assessment Report:

- “- ensuring quality of professional training of teachers of biology in conformity with the social order of society and world standards of education;
- the formation of scientific and special knowledge and skills, professional competence in the field of pedagogical, organizational and managerial, Advisory and methodological activities;
- development of methods of physical, spiritual and intellectual self-development, formation of legal, economic and psychological literacy, culture, thinking and behavior
- construction of multilingual education based on the study of languages and cultures.”

For the Bachelor's and Master's degree programmes geology and Exploration of Mineral Deposits the Caspian State University of Technologies and Engineering has presented the following profile in its Self Assessment Report:

- “- ensuring quality of professional training of bachelors of engineering and technology and master students of engineering and technologies on specialty «Geology and exploration of mineral deposits» in accordance with the state order and market needs;
- formation of scientific and special knowledge and skills, professional competence in the field of production and technological, research, organizational, managerial, design and research and pedagogical spheres”

C Peer Report for the ASIIN Seal

1. The Degree Programmes: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Self Assessment Report
- Homepage of the CSUTE: <http://kguti.kz/en/> (access: 15.11.2016)

Preliminary assessment and analysis of the peers:

The university has defined objectives and learning outcomes for all degree programmes, but the peers could not find the programme specific information on the homepage of the university. Therefore, the peers expect the university to make the learning objectives accessible to all stakeholders, e.g. by publishing them on the university's website in Russian and Kazakh.

The peers examined the objectives and the learning outcomes of of the Bachelor's degree programme Biology on the basis of the Subject-Specific Criteria (SSC) of the Technical Committee for Life Sciences of ASIIN in order to assess if they reflect the level of academic qualification aimed at. The auditors hold the opinion that the objectives and intended learning outcomes of the Bachelor's degree programme Biology should be rewritten in order to make clear that the intended goal of the degree programme is the education of future high school teachers. This special focus of the degree programme is not yet reflected in detail in the learning outcomes. The Self Assessment Report just states that the graduates "have a fundamental knowledge of all biological science within the curriculum of the secondary school". But it remains unclear what is exactly meant by this wording and what competences the graduates will have acquired with respect to their future occupation as high school teachers. The peers also think that the intended qualification profile of the Bachelor's degree programme Biology is formulated too generic. The description in the Self Assessment Report "[the students] know how to analyze educational phenomena, situations, facts, to establish casual relationships and dependencies between them" does not help to understand what kind of teaching and learning techniques the

graduates acquire and how they learn to implement them as high school teachers. In addition, the description of the learning objectives connected with the different areas of biology is much too generic as well. It is only mentioned that “[the students are] able to apply innovative methods and technologies in the field of biological sciences; analyze and evaluate the results of innovation in the educational process; implement their own educational technology” As a consequence, the peers expect that the learning objectives of the Bachelor’s degree programme Biology must be rewritten in order to make transparent in what way the students acquire a sound fundamental basis in biology-relevant mathematics and natural sciences, how they gain methodological competence in the biological sciences and how they learn to carry out practical and research work in laboratories. The graduates should also be able to solve subject-relevant problems and to present the results.

The auditors are not convinced that the graduates of the Bachelor’s degree programme Biology obtain all necessary fundamental knowledge and competences for a professional career in the area of modern biology (molecular and cell biology, genetic engineering, genomics, molecular medicine, biotechnology). As stated in the SSC of the Technical Committee for Life Sciences the graduates should “have acquired sound fundamental biology-relevant knowledge of mathematics and the natural sciences, have sound knowledge of the fundamentals of molecular, cell and organismic biology, have gained methodological competence in bio sciences and are also able to apply this in other contexts, are able to carry out practical work in labs and outdoors independently as well as handle organisms.” The intended learning outcomes must make clear in what way the graduates acquire these competences.

The peers examined the objectives and the learning outcomes of the Bachelor’s degree programme Geology and Exploration of Mineral Deposits on the basis of the SSC of the Technical Committee for Geosciences in order to assess if they reflect the level of academic qualification aimed at. They hold the opinion that the objectives and intended learning outcomes of the Bachelor’s degree programme Geology and Exploration of Mineral Deposits are comprehensive and well founded for a degree programme focusing on geology and the exploration of underground resources. According to the Self Assessment Report, the students acquire a basic knowledge in descriptive geometry and computer graphics, possess systemized information about the features of the geological structure and mineral resources in Kazakhstan, know about the geological processes occurring in the Earth’s crust and the history of the Earth’s geological evolution, can define different kinds of rocks and draw conclusions about their formation and know the basic theories of

petrography, lithology, crystallography and mineralogy. In addition the graduates know about the geology of the world with a special focus on oil and gas geology, they understand the basics of geochemistry and the search and exploration of oil and gas deposits. Finally the graduates are able to solve technical problems on a topographic map, can perform surveying and geodetic work and know about methods and materials used in industrial geology for the processes of developing and exploiting oil and gas deposits.

The peer group judges the objectives and learning outcomes of the Bachelor's degree programme Geology and Exploration of Mineral Deposits to reflect the intended level of academic qualification and to correspond with the SSC of the Technical Committee for Geosciences in most areas. It should be made clear that the graduates acquire the basic knowledge and understanding of the natural sciences (physics, chemistry, mathematics) and of geology.

The objectives and intended learning outcomes of the Master's degree programme Geology and Exploration of Mineral Deposits are also comprehensive and well founded from the auditor's point of view for a degree programme focusing on geology and the exploration/exploitation of oil and gas deposits. The graduates have advanced their knowledge in core and interdisciplinary subjects and are in a position to discuss subject-related problems. They have acquired knowledge about the leading hypotheses about the formation of Earth about its geological development and structure and about the geographical and economic conditions, geological structure, tectonics, hydrogeological characteristics of the Mangystau Region. In addition they know the basics of geodynamics, geophysics, petrophysics, petroleum geology, are able to interpret geophysical data, and can apply geophysical methods in prospecting, exploration and geological mapping. The peer group judges the objectives and learning outcomes of the Master's degree programme to reflect the intended level of academic qualification and to correspond with the SSC of the Technical Committee for Geosciences in most areas. The learning objectives should include that the graduates have acquired the ability to design appropriate experiments, to analyze and interpret data and are able to contribute to further development of geosciences in practice and research.

The auditors confirm that while developing the objectives and learning outcomes Caspian State University of Technology and engineering (CSUTE) has also taken into account the situation on the national job market and has included the relevant stakeholders in the process of formulating and further developing the objectives and learning outcomes. For example, high school teachers were involved in formulating the learning objectives of the

Bachelor's degree programme Biology and representatives of local oil and gas companies took part in formulating the learning objectives of the Geology programmes.

Criterion 1.2 Name of the degree programme

Evidence:

- Self Assessment Report

Preliminary assessment and analysis of the peers:

The auditors hold the opinion that the English translation and the original Russian/Kazakh names of the Bachelor's and Master's degree programmes Geology and Exploration of Mineral Deposits may not correspond with each other. The original Russian/Kazakh name may also mean in a word by word translation "Underground Resources" and not "Mineral Deposits"; this would explain why the focus of the degree programmes is on oil and gas deposits and why the programme coordinators insist that oil and gas can be subsumed under "Mineral Deposits". The peers exclude that oil and gas can be included under the term 'minerals'.

The programme coordinators explain that there is an overlap with the Bachelor's and Master's degree programmes Oil and Gas offered by CSUTE. These two degree programmes specialize in drilling and oil production where as the Bachelor's and Master's degree programmes Geology and Exploration of Mineral Deposits also includes modules in other areas such as crystallography. The companies of the local oil and gas industry asked CSTUE to include more modules concerning oil and gas in the curriculae because the demand on the labor market for graduates with this focus is very high. The peers do not agree that oil is a mineral and point out that for example modules on coal or metal deposits are totally missing, and suggest it would be more appropriate to name the programmes "Geology and Exploration of Oil and Gas". They emphasize that the name of the programme should follow the content of the curriculum, but understand that the incorrect translation from the Russian/Kazakh original into English may be a problem.

As a result, the peers judge that the intended learning outcomes correspond with the names of the geology programmes, if the exploration of oil and gas deposits is included in "Mineral Deposits". They point out that the Russian/Kazakh original names of the Geology programmes are appropriate and only the translation in the Self Assessment Report has lead to some misunderstandings about the content of the geology programmes. Since

these misunderstandings could be solved during the discussions with the programme coordinators the peers see no need for action in this respect.

Similar problems were discussed with the programme coordinators of the Bachelor's degree programme Biology. The translation in the Self Assessment Report did not make transparent that the aim of the programme is the education of high school teachers and therefore the awarded degree is a "Bachelor of Education" and not a "Bachelor of Science". After solving this misunderstanding the peers agree with the name of the Bachelor's degree programme Biology and judge that the intended learning outcomes correspond with the translation as "Bachelor of Education with speciality in Biology" and not as "Bachelors' educational degree on speciality Biology" as stated in the Self Assessment Report. Finally, the peers point out that the translation in English was only made for the accreditation procedure with ASIIN and that the programmes under review are only intended for Russian or Kazakh speaking students and that there are not English speaking students enrolled in the programmes. As a consequence, the misleading English translations do not pose a problem for the students or other stakeholders.

Criterion 1.3 Curriculum

Evidence:

- Self Assessment Report
- Module descriptions
- Curricular overview

Preliminary assessment and analysis of the peers:

There is an individual education plan for each student, is it signed at the beginning of each semester, it helps the university to plan the staff requirements and the organization of classes. As a result, the students have to decide which electives to choose from at the beginning of each semester. It is possible for the students to change this plan within the first two weeks of the semester, and it is also possible to choose an individual focus on a special area of interest and to follow that through the studies.

All the classes are taught in Russian and in Kazakh. In each degree programme there is one group of students that attends the classes in Russian and a different group of students that attends the classes in Kazakh. At the beginning of their studies, the students

are divided into two groups according to their mother tongue (90% are Kazakh speaking and 10% Russian speaking); the teaching staff is bilingual and can teach in both languages. In addition, there is a small group of students that study the degree programmes in part time. Part time students are usually working parallel to their studies and take classes in the afternoon, whereas the fulltime students take the classes in the morning.

The curriculum of the Bachelor's degree programme Biology contains general compulsory modules (e.g. "History of Kazakhstan", "Foreign language", "Political Sciences", "Sociology", and "Philosophy"), compulsory modules in pedagogics ("Basics of pedagogical profession", "Ethno-pedagogics", "Method of teaching Biology"), elective modules (e.g. "Botany", "Zoology", "Human Anatomy", "Histology", "Ecology", and "Physiology"), practical training and the Bachelor's thesis.

The peers examine the study plans for both Bachelor's degree programmes and notice that on the one hand a large part of the curriculum consists of general education subjects like "History of Kazakhstan", "Philosophy", "Sociology", "Political science" and "Basics of law" that have no direct relevance for the specific degree programme. On the other hand most of the basic and advanced courses in biology and geology are not mandatory, but only optional components of the respective Bachelor's programme. With respect to the Bachelor's degree programme Biology the peers point out that the students should acquire a sound fundamental biology-relevant knowledge of mathematics and the natural sciences, know the basics of molecular, cell and organismic biology, and be able to carry out practical work in labs and outdoors, and can handle organisms. The peers emphasize that classes in the natural sciences (physics, chemistry) as well as modules in zoology, botany, microbiology, cell biology, molecular biology, biochemistry and ecology should be a mandatory part of the curriculum. Modern aspects of biology such as biotechnology or epigenetics are missing and should be introduced into the curriculum. It would also be useful to acquaint the Biology students with Bioinformatics so that they are able to gain an impression of this growing area. In general, the curriculum of the Bachelor degree programme Biology should comply with specific areas of the profession and should include modules in microbiology and biotechnology as compulsory components.

The peers notice the same structure in the Bachelor's degree programme Geology and Exploration of Mineral Deposits. The curriculum also contains general compulsory modules (e.g. "History of Kazakhstan", "Foreign language", "Political Sciences", "Sociology", and "Philosophy"), compulsory modules in a specialty (e.g. "Geology of Mineral Deposits", "Fundamentals of subsoil"), elective modules (e.g. "General geology", "Crystallography and Mineralogy", "Petrography", "Petrophysics", "Lithology", "Oil and gas geology"),

practical training and the Bachelor's thesis. The students should acquire a basic understanding of the natural sciences, including chemistry, underlying the study of Geology and of the essential features, processes, materials, history and development of the Earth and of life. The peers suggest that essential modules such as "General geology", "Historical geology", "Crystallography and Mineralogy", "Petrography", "Structural Geology", and "Plate tectonics" should be mandatory components of the curriculum. This would be necessary because otherwise the students will not be able to acquire the required knowledge and understanding of the key aspects and concepts of geology and of the essential features, processes, materials, history and the development of the Earth and life.

Since the peers consider practical experience in the field to be an essential skill for a student who studies geology, they discuss with the programme coordinators of the Bachelor's degree programme Geology and Exploration of Mineral Deposits the amount of practical field work that the students are required to undertake. Although it is mentioned in the Self Assessment Report that the students are enabled for geological work in the field, the peers could not find out when the excursions and mapping exercises in the field take place or how many days the students do geological field work. The programme coordinators agree that geological field work is an essential part of a degree programme in geology and explain that the students of the Bachelor's degree programme Geology and Exploration of Mineral Deposits have one week of field work after their first year of studies. The corresponding module in the study plan is called "Educational practice", but no module description was provided. The peers are convinced that just one week of practical field work is not sufficient to gain the necessary abilities to collect, examine and determine samples, to develop a three and four dimensional picture of a specific geological area, to record and analyze data gained during the excursions and to integrate field and laboratory work. They refer to the SCC of the Technical Committee for geosciences that state that graduates of a bachelor degree programme in Geosciences should have the "ability to integrate field and laboratory evidence with theory", should know about issues concerning sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory" and should be able "to undertake field and laboratory investigations in a responsible and safe manner". In order to achieve these learning aims, the students must spend sufficient time on practical field work.

The programme coordinators agree that one week of practical field work is not enough, but that it should encompass as much as 30 days comprising field trips as well as geological mapping. In addition the field trips should not be limited to the area around Aktau, but should also include other regions in Kazakhstan. As a result, the peers ask CSUTE to redesign the curriculum of the Bachelor's degree programme Geology and Exploration of

Mineral Deposits so that students have more opportunities to acquire practical knowledge in the field. They also expect that a description of the module “Educational practice” is provided.

The curriculum of the Master’s degree programme Geology and Exploration of Mineral Deposits contains general compulsory modules (e.g. “History and philosophy of science”, “Foreign language”, “Pedagogics”, “Psychology”), one compulsory module in a specialty (“Modern problems of geology”), elective modules (e.g. “Geotectonics”, “Geology of the Caspian region”, “Migration and the formation of oil”, “Methodology and methods of Scientific Research”, “Geology of Oil and Gas”), practical training and the Master’s thesis.

The auditors inquire about the employment perspectives of the graduates. They learn that all graduates of the Bachelor’s degree programme Biology work as high school teachers, whereas the graduates of the Geology programmes find adequate jobs in the oil and gas industry. CSUTE follows the professional career of its graduates and tries to keep in contact with them. The auditors conclude that the high acceptance of the graduates and their good opportunities on the labor market are very positive aspects of the degree programmes. The programme coordinators emphasize that the possible employers of the graduates take an active part in designing the degree programmes. CSTUE wants the graduate to be successful and therefore tries to meet the needs of the employers. This includes teachers from high schools that give feedback on the internships and what should be improved in the curriculum of the Bachelor’s degree programme Biology.

Since the demand for high school teachers in Biology is very high in Kazakhstan in general and in the area of Aktau in particular, virtually every graduate will find a job.

The peers also discuss with the students if there are too many mandatory classes in subjects that have no relevance to the specific subject, especially in the Bachelor’s programmes. The students express their wish to reduce the amount of general education subjects in order to have more time for studying programme specific subjects; the peers strongly support this point of view.

In summary, the peers suggest reducing the amount of mandatory classes with no relation to the specific degree programme in order to make more room for classes in natural sciences and to make all essential modules into compulsory components of the respective degree programme.

During the audit the programme coordinators explain, that in September 2016 the national ministry of education has approved new study plans for all degree programmes and that the new curriculae are put into effect with the start of the fall semester 2016. The

peers are surprised about this information and expect CSUTE to provide the new study plans in an electronic form.

Criterion 1.4 Admission requirements

Evidence:

- Model Rules of admission to educational organizations, realizing professional training programs of postgraduate education, approved by the Government of the Republic of Kazakhstan from January 19, 2012 № 109 (as amended on July 9, 2013)
- Model Regulations on Admission for studying in educational organizations, realizing professional training programs of higher education, approved by the Government of Republic of Kazakhstan from January 19, 2012 № 111 (as amended as of July 4, 2014)
- Self Assessment Report

Preliminary assessment and analysis of the peers:

Admission to the Bachelor's degree programmes is based on the candidate's application in accordance with the sum of points of the certificate issued by the results of the unified national testing (UNT). All high school graduates in Kazakhstan have to pass this test in order to be able to apply for studying at a national university. In addition a high school graduate should have an interest in biology and select it as the fourth subject profiling at UNT.

Admission to the Master's degree programme is based on the state Regulations and CSUTE Rules of admission. According to these rules, students applying for a Master's degree should have all prerequisites (disciplines, containing the knowledge and skills necessary for the development of the studied discipline) required for the appropriate professional training in a Master's degree programme.

Students applying for a Master's degree programme must first pass a test of foreign language (usually English) and then a subject specific test (written exam). The sum is the admission points that form the basis of the decision about the admission.

In Kazakhstan, the demand for university graduates is determined by a state order. This plan includes how many state grants can be awarded each year for specific subjects at certain national universities. The high school graduates who achieve the highest scores on

the UNT receive a state grant and can choose the subject and the university where they want to study. A state grant includes free tuition and a scholarship for living expenses.

The state government decides how many grants are given to certain subjects to the national universities. The results of the nationwide test are published in a certain magazine. If a student has good grades in his first semesters at the university, he can apply during the studies for a state grant.

It is also possible to enroll on a fee-paid basis. Enrollment is carried out separately for each degree programme and study language.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes and that there are clear rules how missing individual admission requirements can be compensated.

The auditors notice that the regulations concerning the recognition of credits gained at other higher education institutions do not comply with the Lisbon Convention which states that achievement and competences acquired at another higher education institution must be recognised unless *substantial differences* can be proven by the institution that is charged with recognition, in this case by CSUTE. Since Kazakhstan is member of the European Higher Education Area (EHEA) there must be rules for recognizing achievements and competences acquired at other higher education institutions must be in accordance with the Lisbon Convention. Thus, the peers expect that the rules for the recognition of achievements and competences acquired at other higher education institutions are changed in order to comply with the Lisbon Convention.

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

The peers notice that CSUTE has submitted only a new study plan for the Bachelor's degree programme Geology and Exploration of Mineral Deposits as a hardcopy. As a result, the peers formulate a requirement that current study plans for all degree programmes must be provided in electronic form.

The peers would like to stress that they did not suggest to increase the laboratory work but to do more field work so that the students can get more practical experience in this respect.

The peers understand that CSUTE is limited in its possibilities to change the curricula of the degree programme because of the national regulations. But within certain limits CSUTE can adjust the study plans and has done so in the past. The peers expect that CSUTE tries to reduce the number of credits allocated to general education modules in order to be able to introduce modules in modern biology and geology into the curricula and to make essential modules compulsory for all students.

Taking the statement of CSUTE into account the peers assess criterion 1 to be partly fulfilled.

2. The Degree Programmes: Structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self Assessment Report
- Module descriptions

Preliminary assessment and analysis of the peers:

The auditors confirm that all degree programmes consist of modules that have been adapted to the requirements of the degree programmes. Each module is a package of connected learning units. From the auditors point of view the structure of the modules ensures that the qualification level and the intended learning outcomes can be achieved and that the students can complete the degree programmes successfully without any delay. The peers see that the students can set an individual focus during the course of their studies and that the support by the advisors is very helpful for the students when they have to decide which electives to choose.

The auditors can verify that all intervals of practical work are well integrated into the curriculum and that CSUTE vouches for their quality in terms of relevance, content and structure. The students write a report about their practical work and this report is reviewed by a member of the teaching staff. This scientific advisor also visits the organization where the internship is done and checks the equipment and talks with the people responsible

there. The contacts made during the internships can be used to write the final thesis at the same company. The companies define certain areas of competence that the students should have and are involved with the university in organizing internships and the final thesis.

Part of the practical work in the Bachelor's degree programme Biology is done in secondary schools since the students will become high school teachers.

The teaching staff confirms the impression of the peer group that the academic mobility is rather low. Although the students express their interest in studying abroad, only a few of them actually spend a semester at a foreign university. A lot of students would like to study at European or American universities and the auditors observe with approval the high motivation and interest of the students. On the other hand the auditors learn that financing the studies abroad is a big problem for the students. They cannot afford to pay for tuition and living expenses on their own, but would need a scholarship. There is a national program for studying abroad financed by the national ministry of education, but these grants cover only a part of the actual costs. The ministry of education offers scholarships for academic mobility, but high tuition fees and the language barrier are the reason why only a few students from CSUTE study abroad. Therefore, the peers suggest establishing cooperations with universities where there are no tuition fees and where the costs of living are similar to those in Kazakhstan. Suitable partner universities could possibly be found for example in the Baltic's, Poland or Slovakia.

The peers appreciate that several members of the teaching staff are currently improving their language skills and take classes in English. Since the not sufficient English language skills of the teaching staff and the students are a major obstacle towards academic mobility the peers encourage CSUTE to increase the amount of language courses and to encourage the members of the teaching staff to spend some time at foreign (English speaking) universities. In addition they suggest using some English textbooks and introducing a seminar in English into the curriculum of the Master's programme. The teaching staff agrees during the discussion with the peers, that more English elements should be introduced into the curriculum and that more modern international literature should be used. Finally the peers learn that students from Azerbaijan, Russia, Turkmenistan and Uzbekistan study at CSUTE.

Criterion 2.2 Work load and credits
--

Evidence:

- Self Assessment Report
- Study Plans
- Module descriptions

Preliminary assessment and analysis of the peers:

The Bachelor's degree programmes are designed for 166 Kazakh Credits which corresponds to a total working load of 7590 hours; this includes the internships, physical education and the final exams. The Master's degree programme Geology and Exploration of Mineral Deposits comprises 99 Kazakh Credits, which equals a total working load of 3600 hours, including the final exams and the Master's thesis. CSUTE has also converted the work load into ECTS credit points which is necessary because Kazakhstan is a member of the European Higher Education Area (EHEA). According to the Self Assessment Report, the total working load of 7590 hours is equivalent to 265 ECTS, but it is not made transparent how many hours of academic work are equal to 1 ECTS credit point. In addition, the peers notice that the information in the module descriptions concerning the work load and the ECTS credit points awarded do not correspond with each other. For example, the conversion rate between the work load and ECTS credit points is faulty in the descriptions of the modules "Physics", "Informatics", "Philosophy" and "History of Kazakhstan". Therefore, the peers expect that the module descriptions are updated so that they display the right relation between academic working hours and ECTS credit points. (The module descriptions will be discussed in more detail under criterion 5.1).

The auditors consider the total work load of the degree programmes to be adequate; the students express their general satisfaction with the amount and the distribution of their work load. Just the module descriptions are not correct and must be updated.

In summary, the auditors conclude that there is no structural pressure on the quality of teaching and the level of education due to the work load. The estimated time budget is realistic, and the students can complete the degree programmes without exceeding the regular time frame

Criterion 2.3 Teaching methodology

Evidence:

- Self Assessment Report
- Module descriptions

Preliminary assessment and analysis of the peers:

According to the Self Assessment Report, the following learning activities and teaching methods are applied at CSUTE: lectures; seminars, laboratory classes, internships, exams, final thesis.

During the classes active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. CSUTE wants to encourage the students to gain knowledge from different scientific areas and wants them to be able to solve specific problems through an interdisciplinary approach. This should ultimately contribute to the transition from a teacher centered to a student oriented teaching method. In order to involve all students in the learning process and to develop their thinking and analytical skills, the teaching staff uses several methods of training and gives assignments on different levels of complexity.

In the Master's degree programme Geology and Exploration of Mineral Deposits the amount of self study for each module is increased in comparison with the Bachelor's degree programmes. There is self study under the guidance of a teacher and independent self study out-of-classes.

In summary, the peer group judges the teaching methods and instruments to be suitable to support the students in achieving the learning outcomes. Moreover, they consider the degree programmes to be well balanced between attendance based learning and self-study.

Criterion 2.4 Support and assistance

Evidence:

- Self Assessment Report

Preliminary assessment and analysis of the peers:

CSUTE provides an extensive support system for all students; it includes consultations with advisors about the individual educational plan and the study progress. Furthermore,

the advisor conducts educational work with the assigned students to improve their academic performance and to attract them to participate in CSUTE social life.

In addition, the students can contact their advisor any time for assistance in academic questions. The members of the teaching staff are available on any issues regarding the degree programmes and offer advice on particular modules, as well as on required papers or reports.

The peers learn that every student upon entering CSUTE receives a student handbook which contains information about the organization of the chosen degree programme, on the preparation of an individual study plan, about the monitoring and evaluation of the learning achievements and the organization of different kinds of internships.

The peer group notes approvingly the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay.

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

In its statement CSUTE has not described if or how they will define for how many working hours one ECTS credit is awarded. Consequently the peers retain the respective requirement.

The peers want to point out that they just suggested looking for suitable partner universities in the Baltic States, Poland or Slovakia. It is up to CSUTE to increase the academic mobility of its students and to establish measures to help them with the high cost involved.

The peers assess criterion 2 to be mostly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation
--

Evidence:

- Module descriptions
- Regulation on organization and conducting of examinations for students of all forms of bachelor and master study

Preliminary assessment and analysis of the peers:

As stated in the Self Assessment Report, there is a period for midterm exams and a period for the final exams. The form of the exams for each module is specified in the module descriptions. Periods of winter and summer examinations are scheduled in the academic calendar. During the examination period students take exams according to the approved schedule. There is a comprehensive exam in each module, it is conducted by the teachers of all disciplines of the module and there is a joint examination score, which is set in the official transcript and on the online platform "Platonus". To make up for a failed examination a student must retake the module in the next academic term or in the summer semester. The summer semester is designed for students who have credit deficits and have failed some exams.

There is also an ongoing monitoring of the students progress in his studies, it is evaluated by the teaching staff on the basis of attendance and preparedness for the classes.

Midterm examinations are obligatory and carried out in accordance with the academic calendar. Form and content of midterm examinations are determined by the teacher of each module. The sum of all points, for the midterm exams and the ongoing monitoring, are entered into the electronic journal by the teacher. If a student has not enough points, he is not allowed to take the final exam.

During the examination period the students must take all exams according to the schedule in strict accordance with the individual study plan. In some cases (due to illness, family emergency and other objective reasons) exceptions can be made from this strict examination plan.

The final exams are conducted in various forms. Oral exams are applied in a number of modules, tests are PC based; written exams are organized by the administration and are controlled on an anonymous basis. A detailed examination plan is handed out to the students at the start of each semester.

The final grade is composed of the admission points and the grade of the final exam. There is a central department that monitors the form of exams and the students can see their individual results on the online platform "Platonus". The auditors point out that the

midterm exams and the ongoing monitoring should be mentioned in the module descriptions as well as the composition of the final grade.

The peers learn that students who fail too many credits may lose their state grant and may have to repeat the academic term. Only very few students leave the university without a degree. During the first two semesters of the Bachelor's degree programmes the students can take the final exam three times, afterwards only two times. The academic advisors and the teaching staff try to help the students to make up time lost by e.g. illness during the semester so that every student has a chance to pass the final exam. The peers also learn that the students are satisfied with the number and difficulty of the examinations.

In the course of the onsite visit, the auditors examine sample Bachelor's and Master's theses of all degree programmes. In general, they are satisfied with the quality of the theses although, they find out that more ambitious and research oriented theses cannot be done at CTUSE, because the technical equipment especially in the biology and geology laboratories is not sufficient. (This critical point will be discussed in more detail under criterion 4.) Furthermore, the peers notice that in all of the provided theses there was no citation index and the used figures and diagrams did not include a reference to the source. For this reason, the peers gain the impression that the students must learn about scientific working standards and ethnics and must know about the concepts of writing a scientific publication.

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

The peers appreciate that all final theses at CSUTE are checked by the programme "Anti-plagiarism" and that there are internal regulations governing the implementation and execution of final works. Nevertheless, the peers are not convinced that all students at CSUTE are familiar with international scientific working standards especially with respect to using references. As a result they ask the programme coordinators to put more emphasis on this topic.

The peers assess criterion 3 to be mostly fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self Assessment Report
- Staff handbook

Preliminary assessment and analysis of the peers:

The auditors ask the deans of the departments about the composition and qualification of the teaching staff. They learn that each member of the teaching staff is approved by the Rector of CSUTE. The number of staff members is determined by the number of degree programmes, amount of teaching workload and the number of admitted students.

The teaching workload is reflected in the individual working plan and logbook, which is viewed, discussed and approved at a meeting of the department. The teaching staff consists of Professors, Assistant professors, PhDs and Teachers with a Master's or Bachelor's degree. Since there was no staff handbook from the department of Petroleum Engineering and Geology available to the peers they ask CSUTE to hand it in as soon as possible.

The peers also enquire about the number of staff members that teach in the Biology programme. The dean of the department explains that there are 3 assistant professors and two senior teachers in the Biology programme. Although there are currently only 115 students enrolled in the Biology programme the dean of the department agrees with the assessment of the peers that more scientific staff should be hired. The auditors point out that the composition and qualification of the teaching staff is suitable to sustain the Bachelor's degree programme Biology as it is currently in effect. But if their recommendations with respect to the design of the curriculum are implemented and modules in modern areas of biology (e.g. microbiology, biotechnology, molecular and cell biology, genetic engineering, genomics, molecular medicine) are implemented, it would be necessary to hire new staff members that are qualified to teach these classes.

The situation in the Bachelor's and Master's degree programmes Geology and Exploration of Mineral Deposits is a little different. As the head of the department explains there are currently 8 professors or assistant professors and 17 senior teachers giving classes in the Geology programmes. The auditors judge the number and qualification of the teaching staff in the Geology programmes not to be sufficient to teach all geology courses recommended as 'mandatory' (see above criterion 1.3), but they expect CSUTE to hire more

qualified staff members in order to be able to offer more classes in essential areas of geology.

Criterion 4.2 Staff development

Evidence:

- Self Assessment Report
- Staff handbook

Preliminary assessment and analysis of the peers:

The auditors discuss with the members of the teaching staff if they have the opportunity to spend time abroad and to participate in international projects. They learn that CSUTE has implemented a programme to send teachers abroad in order to improve their teaching and language skills. The members of the teaching staff explain that in the recent years stay at Brussels, Warsaw or Düsseldorf have taken place. In addition there is an internal qualification programme at CSUTE in place that offers courses to improve the professional and didactic skills of the teachers. During the onsite visit the members of the teaching staff express their general satisfaction with their opportunities to further their teaching skills.

In summary, the auditors confirm that CSUTE offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further develop their professional and teaching skills.

Criterion 4.3 Funds and equipment

Evidence:

- Self Assessment Report.
- Onsite visit of the laboratories

Preliminary assessment and analysis of the peers:

During the onsite visit the peers had the opportunity to visit class rooms, library and laboratories at the department of Geography and Biology and the department of Petroleum Engineering and Geology. According to the Self Assessment Report, there are laboratories for “Botany”, “Zoology”, “Anatomy and Morphology of Man” and “Human and animal

physiology” at the department of Geography and Biology. In the course of the onsite visit the peers also visited these laboratories and found out that they are rather small classroom with 10 to 15 working places for students, but basically without any technical equipment, besides some outdated microscopes so that there is no possibility to do practical work. There were just a few samples for studying plants and animals and the practical lessons mentioned in the module descriptions are mostly done on a computer on a theoretical basis or with a few models of human and animal organs and skeletons (in case of the anatomy laboratory).

In order to be able to ensure that the students can achieve the intended learning outcomes, specifically with regard to the practical skills of the students, the following equipment would be indispensable: up-to-date microscopes, incubators, working benches with laminar flow hoods and water baths, freezers, an up-to-date refrigerated centrifuge, up-to-date autoclaves, a spectrophotometer, equipment for gel electrophoresis and documentation, PCR machines, a temperature regulated culture shaker as well as sufficient micro pipettes. In the view of the peers, the current equipment of the department of Geography and Biology allows only for demonstrating rather than own experimenting by the students.

The peers judge it also necessary to provide new laboratories in the department of Geography and Biology where the new equipment can be used by the students and the teaching staff, best would be to establish several research laboratories where the teaching staff can follow their research interests and the students can do their Bachelor’s theses. If new laboratories are to be built, it is useful to follow standard procedures when it comes to choosing the design and building materials. For instance, Biology labs should have propane pipelines for Bunsen burners and other applications. Showers and sinks must be installed in such labs.

The head of the department explains that they are aware of the missing technical equipment and the insufficient working space. For this reason, the department has applied for additional funds and their application was accepted by the national ministry of education. The department of Geography and Biology will receive 38 million Tenge (103.000 €) per year over the next three years, and the department plans to buy new equipment and has already signed the contracts to purchase them. The peers appreciate these efforts and would like to know what equipment exactly has been purchased or at least what the department is planning to buy and would like to see the corresponding lists.

With respect to the technical equipment and the laboratory facilities of the Geology programmes the peers consider the laboratories for “oil and gas” to be well equipped, but

basic equipment to teach geology is missing. As a result, e.g. grain size analysis, preparation of rocks for thin section and investigation of rocks and minerals by polarizing microscopes is not possible. For 3 D modelling of mineral resources appropriate software should be available.

Each department at CSUTE has a library where the students have electronic access to international journals and literature e.g. through Web of Science, Springer Link, and Research Gate, but there is no remote access from home. The students confirm that international textbooks or articles from journals are not part of the used literature; they work only with textbooks in Russian and Kazakh. The peers gain the impression that the students are interested in working with international literature and articles and are aware that English language skills are important for their future job perspectives. Furthermore the students point out that high school teachers in Kazakhstan are expected to teach some classes in English, but since there is shortage of modern international scientific publications they use older Russian textbooks. CSUTE has realized the need for improvement in this area and has increased its efforts to improve the language skills of teachers and students.

The auditors conclude that currently there is not sufficient technical equipment available for the students and that adequate laboratories with enough working space are missing. As a result, the infrastructure does not comply with the requirements for sustaining the degree programmes.

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

The peers appreciate that CSUTE sends teachers to the central universities of the republic for training in a foreign language (English) and they encourage the programme coordinators to further increase the efforts to improve the English skills of all staff members.

Together with its statement CSUTE has provided a staff handbook from the department Petroleum Engineering and Geology so the peers are satisfied in this respect.

The peers appreciate the efforts of CSUTE to make transparent in which way the students have access to technical equipment and they thank the programme coordinators for providing a comprehensive list of laboratory equipment that they are planning to purchase. Unfortunately no timetable was presented when the new equipment will be bought and it also remains unclear how adequately equipped laboratories will be provided.

ed. They insist that the equipment for all the laboratories must be updated so that the students can carry out practical work. In addition, there must be sufficient laboratory space for all students and new laboratories where the students can do their practical work and where they and the teachers can do basic research and follow individual projects must be established. Finally, the peers stress that the teaching staff must be qualified to use the laboratories, to introduce the student to research activities, and to give classes in modern biology and geology.

The peers assess criterion 4 to be not fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Self Assessment Report
- Module descriptions.

Preliminary assessment and analysis of the peers:

The auditors confirm that the module descriptions are accessible to all students and teachers via the online platform “Platonus”. As mentioned before, the auditors complain that the midterm exams, the ongoing monitoring and the composition of the final grade are not mentioned in the module descriptions, this should be changed. Moreover, the literature references in almost all module descriptions do not include modern international literature.

Furthermore, the peers notice that the formulation of the module’s content is sometimes unrealistic with respect to the aims that can actually achieved by the student. For example the students that take the module “Petrography” in the Bachelor’s degree programme Geology and Exploration of Mineral Deposits will “be able to determine their [rocks] age and composition in the laboratory”. The peers are convinced that Bachelor students will not be able to do this, since the necessary technical equipment is not available to them. As stated under criterion 2, the information in the module descriptions concerning the work load and the ECTS credit points awarded do not correspond with each other.

In addition, the peers point out that there a final thesis included as a compulsory component in the curriculum of all degree programmes, but that there is no corresponding module description in both Bachelor's degree programmes. Therefore, it remains unclear in which form the final thesis is done. There is module description for the thesis in the Master's degree programme Geology and Exploration of Mineral Deposits, but the peers judge it to be too schematic and formal, and therefore to leave not enough room for specialization. The peers suggest using a more generic description of the content of the Master's thesis.

Finally, the peers learn that “practical lesson” in the module description means a training sessions in the classroom whereas “laboratory lesson” means practical work in a laboratory. Since the distinction is not transparent, the peers suggest to make the descriptions consistent and to name laboratory work accordingly and to distinguish it from educational work.

As a consequence, the peers expect that the module descriptions are updated and missing information is added.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Discussions during the onsite visit
- Self Assessment Report

Preliminary assessment and analysis of the peers:

The peer group notices that no Diploma Supplement is issued after graduation. They point out that a Diploma Supplement must be issued to all graduates in English. The Diploma Supplement should contain detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student and should include statistical data regarding the final grade and information about its composition. This allows the reader to classify the individual result.

The peers insist that all graduates of the degree programmes must be provided with a Diploma Supplement, it should be automatically issued together with the CSUTE's diploma after the graduation. The graduates benefit from this standardized document because this way their academic qualification is more easily recognized abroad, the description of

their academic career and the competencies acquired during their studies are included, and it offers them easier access to opportunities for work or further studies abroad. Graduation represents the culmination of the students' period of study. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.

Criterion 5.3 Relevant rules

Evidence:

- Self Assessment Report.
- Regulation on organization and conducting of examinations for students of all forms of bachelor and master study

Preliminary assessment and analysis of the peers:

The auditors confirm that the rights and duties of both CSUTE and the students are clearly defined and binding. All relevant course-related information is available in Russian and Kazakh to the students and teachers. But the auditors point out that the information available to other stakeholders outside the university (e.g. employers, high school graduates) is not sufficient; they have no access to the module descriptions, the study plans or the learning objectives. For this reason, all relevant documents should be made accessible for all stakeholders and it must be ensured that they can refer to them. The peers suggest publishing the aforementioned documents on the CSUTE homepage.

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

The peers appreciate that CSUTE has submitted updated module descriptions for the internships.

Although CSUTE points out in its statement that the graduates do not have any problems to verify their academic qualifications, the peers insist that each graduate is awarded a Diploma Supplement that contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student. The award of a Di-

ploma Supplement is part of the Bologna Process and therefore Kazakh Universities are obliged to follow this agreement.

The peers assess criterion 5 to be partly fulfilled.

6. Quality management: Quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Regulation on organization and conducting of examinations for students of all forms of bachelor and master study
- Model Rules of admission to educational organizations, realizing professional training programs of postgraduate education, approved by the Government of the Republic of Kazakhstan from January 19, 2012 № 109 (as amended on July 9, 2013)
- Model Regulations on Admission for studying in educational organizations, realizing professional training programs of higher education, approved by the Government of Republic of Kazakhstan from January 19, 2012 № 111 (as amended as of July 4, 2014)
- Self Assessment Report
- Discussions during the onsite visit

Preliminary assessment and analysis of the peers:

The auditors ask the deans of the departments about the quality management system at CSUTE and learn that the quality policy implies a continuous process in order to improve the quality of the degree programmes and is carried out through internal and external evaluation. Internal evaluation of the quality of the degree programmes is provided through the evaluation of the performance of the teachers by the students. The results are examined by the dean of the department, its outcome influences the individual payment bonus of the teachers; the bonus can amount up to 100% of the fixed payment.

External quality assessment of the degree programmes is provided by institutional accreditation of the university and meetings with the employers about their needs and wishes according to the demands of the labor market

There is an online survey to ask the students about their opinion on the quality of the classes. This survey is provided on the online platform “Platonus” and offers the students the opportunity to give feedback on each module. Via the online platform the students can give feedback about their classes at the end of each semester. The auditors have the impression that the feedback is taken seriously by the staff and changes are made in the next year if there is a negative feedback.

The academic council of CSUTE analyzes the surveys and if the results are negative they speak with the responsible teacher and try to solve the problems.

During the discussion with the students the peers learn that there is no direct feedback to the students about the course evaluations, but there is a students` parliament and representatives of the parliament are also members of the academic council. Since not all the students have access to the results of the course evaluation and do not get a direct feedback, the peers ask CSUTE to change this procedure and make sure that all students get a feedback about the results of the course evaluations.

The peers ask the programme coordinators about the involvement of the employers in designing the degree programmes. The programme coordinators explain that representatives from CSUTE visit regularly the regional educational departments and conduct round tables to get a feedback on the degree programmes. In addition regular meetings with local companies take place. The deans of the departments are responsible for monitoring the employment rate of the graduates and in general CSUTE puts a high emphasis on following their graduates and finding out about their professional career.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes.

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

Since CSUTE has not commented on the remark of the peers that the students do not get a feedback about the results of the teaching evaluations, they retain the corresponding requirement.

The peers assess criterion 6 to be partly fulfilled.

D Additional Documents

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

- Copies of the new study plans for all degree programmes in electronic form
- List of technical equipment that has already been bought or what is planned to be purchased
- Staff handbook from the department Petroleum Engineering and Geology

E Comment of the Higher Education Institution (21.12.2016)

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

- Appendix 1: Model curriculum Bachelor of Education with speciality in Biology
- Appendix 2: List of planned purchases for the Cytology and Histology educational laboratory
- Appendix 3: List of planned purchases for the Anatomy of Human and Animal Physiology educational laboratory
- Appendix 4: List of planned purchases for the new Plant Physiology and Biochemistry educational laboratory
- Appendix 5: Model curriculum Bachelor of Engineering and Technology with speciality in Geology and Exploration of Mineral Deposits
- Appendix 6: Approved new study plan Bachelor of Engineering and Technology with speciality in Geology and Exploration of Mineral Deposits
- Appendix 7: Staff handbook from the department Petroleum Engineering and Geology
- Updated module descriptions

F Summary: Peer recommendations (16.01.2017)

Taking into account the additional information and the comments given by the Caspian State University of Technologies and Engineering named after S.Yesenov the peers summarize their analysis and final assessment for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	Suspension	--	30.09.2022
Ba Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022
Ma Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022

Conditions to be met for resumption

For all degree programmes

- V 1. (ASIIN 4.3) The equipment for the laboratories must be updated so that students are able to carry out practical work in labs independently. Laboratory equipment for the preparation and investigation of rocks and minerals (thin sections, grain size analysis etc.) as well as a sufficient amount of polarization microscopes for courses should be available in the laboratories of the Geology programmes. With respect to the Bachelor`s degree programme Biology the following equipment would be indispensable: up-to-date microscopes, incubators, working benches with laminar flow hoods and water baths, freezers, an up-to-date refrigerated centrifuge, up-to-date autoclaves, a spectrophotometer, equipment for gel electrophoresis and documentation, PCR machines, a temperature regulated culture shaker as well as sufficient micro pipettes.
- V 2. (ASIIN 4.3) There must be sufficient laboratory space to provide all students with a fully equipped working place. New laboratories where the students can do their practical work and where they and the teachers can do basic research and follow individual projects must be established.
- V 3. (ASIIN 4.1) The composition, scientific orientation and qualification of the teaching staff must be suitable for sustaining the degree programmes. New qualified staff

must be hired in order to be able to update the curricula and to introduce classes in modern biology and geology.

Possible Requirements – preliminary wording

For all degree programmes

- A 1. (ASIIN 5.2) Issue a Diploma Supplement that contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student to every graduate.
- A 2. (ASIIN 1.4) Define rules for the recognition of credits acquired at other higher education institutions in accordance with the Lisbon Recognition Convention.
- A 3. (ASIIN 2.2) Define for how many working hours one ECTS credit is awarded.
- A 4. (ASIIN 5.1) Rewrite the module descriptions so as to include information about the form of exams, the composition of the final mark. Add missing module descriptions (final thesis, educational practice) and correct the mistakes concerning the conversion of the work load into ECTS credits.
- A 5. (ASIIN 6) Ensure that the students get a feedback about the results of the teaching evaluation.
- A 6. (ASIIN 3) Adopt scientific working standards and make sure that all students know how scientific publications are written including the citation rules for tables and diagrams.
- A 7. (ASIIN 1.3) Provide current study plans for all degree programmes in electronical form.

For the Bachelor's degree programme Biology

- A 8. (ASIIN 1.3) Redesign the programme so that modules in modern biology are compulsory components of the curriculum.
- A 9. (ASIIN 1.1) Draft the learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programme.

For the Bachelor's degree programme Geology

A 10. (ASIIN 1.3) Redesign the programme so that essential modules in geology are compulsory components of the curriculum.

A 11. (ASIIN 1.3) Make sure that the students gain more practical experience in the field.

Possible Recommendations – preliminary wording

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to establish academic cooperations with suitable foreign universities so that the students have better opportunities to spend some time abroad.

E 2. (ASIIN 5.3) It is recommended to make the relevant information about the degree programmes available to all stakeholders.

E 3. (ASIIN 5.1) It is recommended to use more modern international literature and update the module descriptions accordingly

For the Bachelor's degree programmes

E 4. (ASIIN 1.3) It is recommended to reduce the amount of classes taught in subjects that have no relation to the specific degree programme.

G Comment of the Technical Committees

Technical Committee 10 - Life Sciences (16.03.2017)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the report and follows the assessment of the peers without any changes.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Biology	Suspension	--	30.09.2022
Ba Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022
Ma Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022

Technical Committee 11 - Geo Sciences (20.03.2017)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the report and asks for a clarification of the requirements for the teaching staff as a reference for the university. Otherwise, the TC 11 follows the assessment of the peers without any changes.

The Technical Committee 11 – Geo Sciences recommends the award of the seals as follows:

G Comment of the Technical Committees

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Biology	Suspension	--	30.09.2022
Ba Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022
Ma Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022

H Decision of the Accreditation Commission (31.03.2017)

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

The Accreditation Commission for Degree Programmes discusses the situation at CSUTE and if it will be possible to meet the conditions within the next 18 months. They want to emphasize that the deficits with respect to the technical equipment, the laboratory space and the teaching staff are so essential that it will be difficult for CSUTE to improve the situation substantially and to meet international standards. In addition, they point out that it might be necessary to visit CSUTE again after 18 months in order to verify on-site if the conditions have been met or not. Finally, they want to make clear that CSUTE has of course the option to withdraw its request for international accreditation if they think they will not be able to raise the standards to an international level within the next 18 months. They rewrite the conditions for resumption in order to make clear which conditions are relevant for the different degree programmes. Otherwise they follow the suggestions of the peers and the Technical Committees without further changes.

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

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Biology	Suspension	--	30.09.2022
Ba Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022
Ma Geology and Exploration of Mineral Deposits	Suspension	--	30.09.2022

Conditions to be met for resumption

For all degree programmes

- V 1. (ASIIN 4.3) There must be sufficient laboratory space to provide all students with a fully equipped working place. New laboratories where the students can do their

practical work and where they and the teachers can do basic research and follow individual projects must be established.

- V 2. (ASIIN 4.1) The composition, scientific orientation and qualification of the teaching staff must be suitable for sustaining the degree programmes. New qualified staff must be hired in order to be able to update the curricula and to introduce classes in modern biology and geology.

For the Geology programmes

- V 3. (ASIIN 4.3) The equipment for the laboratories must be updated so that students are able to carry out practical work in labs independently. Laboratory equipment for the preparation and investigation of rocks and minerals (thin sections, grain size analysis etc.) as well as a sufficient amount of polarization microscopes for courses should be available in the laboratories.

For the Biology programme

- V 4. (ASIIN 4.3) The equipment for the laboratories must be updated so that students are able to carry out practical work in labs independently. The following equipment would be indispensable: up-to-date microscopes, incubators, working benches with laminar flow hoods and water baths, freezers, an up-to-date refrigerated centrifuge, up-to-date autoclaves, a spectrophotometer, equipment for gel electrophoresis and documentation, PCR machines, a temperature regulated culture shaker as well as sufficient micro pipettes.

Possible Requirements – preliminary wording

For all degree programmes

- A 1. (ASIIN 5.2) Issue a Diploma Supplement that contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student to every graduate.
- A 2. (ASIIN 1.4) Define rules for the recognition of credits acquired at other higher education institutions in accordance with the Lisbon Recognition Convention.
- A 3. (ASIIN 2.2) Define for how many working hours one ECTS credit is awarded.

- A 4. (ASIIN 5.1) Rewrite the module descriptions so as to include information about the form of exams, the composition of the final mark. Add missing module descriptions (final thesis, educational practice) and correct the mistakes concerning the conversion of the work load into ECTS credits.
- A 5. (ASIIN 6) Ensure that the students get a feedback about the results of the teaching evaluation.
- A 6. (ASIIN 3) Adopt scientific working standards and make sure that all students know how scientific publications are written including the citation rules for tables and diagrams.
- A 7. (ASIIN 1.3) Provide current study plans for all degree programmes in electronical form.

For the Bachelor's degree programme Biology

- A 8. (ASIIN 1.3) Redesign the programme so that modules in modern biology are compulsory components of the curriculum.
- A 9. (ASIIN 1.1) Draft the learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programme.

For the Bachelor's degree programme Geology

- A 10. (ASIIN 1.3) Redesign the programme so that essential modules in geology are compulsory components of the curriculum.
- A 11. (ASIIN 1.3) Make sure that the students gain more practical experience in the field.

Possible Recommendations – preliminary wording

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to establish academic cooperations with suitable foreign universities so that the students have better opportunities to spend some time abroad.
- E 2. (ASIIN 5.3) It is recommended to make the relevant information about the degree programmes available to all stakeholders.

- E 3. (ASIIN 5.1) It is recommended to use more modern international literature and update the module descriptions accordingly

For the Bachelor's degree programmes

- E 4. (ASIIN 1.3) It is recommended to reduce the amount of classes taught in subjects that have no relation to the specific degree programme.

Appendix: Programme Learning Outcomes and Curricula

According to the self-assessment report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor’s degree programme Biology:

Competencies obtained by graduates upon educational program completion

Specialty	Knowledge	Capability	Skills	Competencies
5B011300-Biology	<ul style="list-style-type: none"> - basic concepts, laws and methods in the field of biology and related disciplines of the specialty; - regularities in the processes and phenomena occurring in animate and inanimate nature; - theoretical and applied aspects of pedagogics, psychology and teaching methods; - the basic methodological principles of modern biology; - diversity of flora and fauna, its reproduction patterns, the development and the formation, structure and spatial distribu- 	<ul style="list-style-type: none"> - using of modern scientific methods of cognition of nature to meet the challenges arising from professional activities; - to be able to navigate the information and conceptual field of natural science subjects for using in the joint work in a given context; - solving the psychological and pedagogical problems in their professional activities, give psychological and pedagogical characteristics of the collective identity; - setting a goal and formulating the tasks associated with the implementation of professional activity; - using of psycho-pedagogical 	<ul style="list-style-type: none"> - mastering the methods of physiological experiments, computer methods of gathering, storing and processing information, to use it in their professional activities; - mastering the methods of teaching of biological disciplines in secondary and specialized secondary educational institutions, skills to work with plants and animals, preparation of herbarium material, the creation of a school site, the organization of work of biological cir- 	<ul style="list-style-type: none"> - mastering the information technology, working with all kinds of information; be able to search for, analyze and select relevant information; - be able to design and organize the educational process depending on the profile of training; - demonstrating the ability of the selection, adaptation and modification of innovative methods and technologies of training in specialized classes; the organization of research activity of learners; to the organization of independent work of learners on the basis of modern techniques; - demonstrating the ability of ownership techniques and meth-

0 Appendix: Programme Learning Outcomes and Curricula

	<p>tion, structure, systematics of major groups, the value of human life;</p> <ul style="list-style-type: none"> - the basic functions of the psyche of schoolchildren and learners, the psychology of personality and interpersonal relationships; - pedagogical process, the general form of organization of learning activities, methods, techniques, means of its organization. 	<p>and methodological procedures in the implementation of their professional activities;</p> <ul style="list-style-type: none"> - working with a microscope, the slides are ready to forgive, make morphological and anatomical description of the plant; - investigating about the micrographs and electron-cells, to identify the major organelles and inclusion plasmolemma derivatives; read histological preparations, identify the main types of animal tissue systems; - investigating about diagrams, drawings, photomicrographs, in accordance with the requirements of the course of the program; - designing an experiment, record the protocols of the experiments, writing reports on the study, solve the genetic problem in the different types of studies to analyze the results of crosses, use statistical methods of processing. 	<p>cles.</p>	<p>ods of teaching biology, planning and staging of the experiment, analysis and discussion of the results; the methodology of planning and carrying out the lesson, drawing flow charts, methods of biological-chemical calculations and solving theoretical and practical problems.</p>
--	---	---	--------------	---

The following **curriculum** is presented:

Course	Discipline code	<i>Discipline description</i>	Credit q-ty	Term	Control form
1	2	3	4	5	6
GES	<i>General education subjects</i>		33		
MC	Mandatory components		33		
	IK 1101	History of Kazakhstan	3	1	State exam
	Fil 2102	Philosophy	3	4	Exam
	IYa 1103	Foreign language	6	1-2	Exam
	K(R)Ya 1104	Kazakh (Russian) language	6	1-2	Exam
	Inf 1105	Computer science	3	1	Exam
	EUR 1105	Environment and sustainable development	2	1	Exam
	Soc1106	Sociology	2	1	Exam
	Pol 2107	Political science	2	4	Exam
	OET 2108	Elementary economics	2	3	Exam
	OP 2109	Law basics	2	4	Exam
	OBZh 1110	Health and Safety	2	1	Exam
SC	Selectable components				
BS	<i>Basic subjects</i>		64		
MC	Mandatory components		20		
	VPP 1201	Basics of pedagogical profession	1	1	Exam
	Ped 1202	Pedagogics	3	3	Exam
	Etn 2203	Ethno-pedagogics	2	3	Exam
	PRCh 1204	Human psychology and development	3	2	Exam
	Sam 2205	Self-discovery	2	4	Exam
	VFShG 1206	Developmental physiology and school hygiene	2	2	Exam
	PK(R)Ya 3207	Profession-oriented Kazakh (Russian) language	2	5	Exam
	POIYa 3208	Profession-oriented foreign language	2	6	Exam

0 Appendix: Programme Learning Outcomes and Curricula

	MPB 3209	Method of teaching Biology	3	5	Exam
SC	Selectable components		44		
MS	Major subjects		32		
MC	Mandatory components		5		
	TMVR 3301	Theory and methodology of up-bringing	2	6	Exam
	VB 1302	Introduction to Biology	3	2	Exam
SC	Selectable components		27		
TOTAL:			129		
AET	Additional education types				
PI	Professional internship		Not less than - 6*		
	Education				Report
	Work experience (pedagogical)				Report
	Pre-graduation				Report
PE	Physical Education		8		
FA	Final Assessment		3		
	State exam of the speciality		1	8	
	Thesis (project) writing and defense		2	8	
TOTAL:			Not less than - 154		

According to the self-assessment report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Geology and Exploration of Mineral Deposits:

Competencies obtained by graduates upon educational program completion

Specialty	Knowledge	Capability	Skills	Competencies
5B070600- Geology and exploration of mineral deposits	<ul style="list-style-type: none"> - methods of study and analysis of the composition and properties of geological bodies of minerals in the subsoil; - methodological bases of all types of geological survey, prospecting and exploration; - the practical application of different types of geological maps for forecasting and prospecting of mineral resources; - economics and organization exploration work in modern conditions; - foundations of subsoil use, for the protection of the law labor, environment, health and safety at carrying out geological works 	<ul style="list-style-type: none"> - analyzing the composition and properties of geological bodies and useful minerals in the bowels; - methodologically competent to carry out all kinds of geological survey, prospecting and exploration works with the use of remote sensing, drilling, mining, geophysical, geochemical and laboratory methods research; - practicing the different types of geological maps for the prediction and research of mineral resources; - preparing the projects for all kinds of exploration and economically substantiate their effectiveness in modern conditions; 	<ul style="list-style-type: none"> - drawing, reading and analysis of geological maps and reports of field geological documentation using the map, geodetic, surveying, geophysical data; - a comprehensive study of the area of operations and features of the geological structure of the area; - methodology of geological studies, of the macroscopic and microscopic study of rock-forming and ore minerals, and oil and gas reservoirs; - establishment and delineation of mineral deposits modern technical equipment, preparation of forecast maps fields, exploration evaluation, forecasting and industrial mineral reserves in the bowels. 	<ul style="list-style-type: none"> - to be mobile in the changing conditions of professional activity; - demonstrate the ability to formulate and solve problems arising in the course of professional, scientific and research activities; - demonstrate the ability to motivate the Study of geology and prospecting for mineral resources, the state and prospects of development of the industry, the legal framework of subsoil use, as well as the quality requirements of mineral resources and the global environment, regional and local markets.

The following **curriculum** is presented:

Course	Discipline code	Discipline description	Credit q-ty	Term	Control form
1	2	3	4	5	6
GES	General education subjects		33		
MC	Mandatory components		33		
	IK 1101	History of Kazakhstan	3	1	State exam
	Fil 2111	Philosophy	3	4	Exam
	IYa 1108	Foreign language	6	1-2	Exam
	K(R)Ya 1106	Kazakh (Russian) language	6	1-2	Exam
	Inf 1102	Computer science	3	1	Exam
	EUR 1105	Environment and sustainable development	2	1	Exam
	Soc1104	Sociology	2	1	Exam
	Pol 2110	Political science	2	3	Exam
	OET 2107	Basics of economic theory	2	3	Exam
	OP 2109	Law basics	2	3	Exam
	OBZh 1103	Health and Safety	2	1	Exam
SC	Selectable components				
BS	Basic subjects		64		
MC	Mandatory components		20		
	PK(R)Ya 2201	Profession-oriented Kazakh (Russian) language	2	4	Exam

0 Appendix: Programme Learning Outcomes and Curricula

	POIYa 3202	Profession-oriented foreign language	2	6	Exam
	Mat2103	Mathematics	5	1-2	Exam
	Fiz 1204	Physics	5	2-3	Exam
	NGKG 1205	Descriptive geometry and computer graphics	3	2	Exam
	GMRK 2206	Geology and Mineral Resources of Kazakhstan	3	4	Exam
SC	Selectable components		44		
MS	Major subjects		32		
MC	Mandatory components		5		
	GMPI 3301	Geology of Mineral Deposits	2	5	Exam
	ON 3202	Fundamentals of subsoil	3	6	Exam
SC	Selectable components		27		
TOTAL:			129		
AET	Additional education types				
PI	Professional internship		Not less than -6*		
	Education				Report
	Work experience				Report
	Pre-graduation				Report
PE	Physical Education		16		
FA	Final Assessment		3		
	State exam with the speciality		1	8	
	Thesis (project) writing and defense		2	8	

0 Appendix: Programme Learning Outcomes and Curricula

TOTAL:	Not less than - 154	
---------------	--------------------------------	--

According to the self-assessment report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Geology and Exploration of Mineral Deposits:

Competencies obtained by graduates upon educational program completion

Specialty	Knowledge	Capability	Skills	Competencies
5M070600- Geology and exploration of mineral deposits	<ul style="list-style-type: none"> - analyzing the stratigraphic material cameral stratigraphic studies, depending on the specific geological conditions; - analysis of the geographical and economic conditions, geological structure, tectonics; communication of tectonic processes in terms of geodynamics; - representing the tectonic processes in the lithosphere and on its surface, the spatial distribution of structural connections and conditions of formation of the main elements of the geological structure of the crust of the continents and the oceans; - principles of integrated interpretation of geophysical data; - the leading hypothesis of the earth's formation as a planet, the understanding of the geological processes. 	<ul style="list-style-type: none"> - making the stratigraphic sections (columns) and their correlation circuits using partitioning methods; - mastering the basics of the petrophysical interpretation of geophysical data; - forecast promising oil and gas natural reservoirs, introduction of geochemical materials research and exploration for oil and gas; - interpreting the seismic data; - critically analyzing the diverse information on the geological structure and geological development of the planet in terms of existing theories and hypotheses. 	<ul style="list-style-type: none"> - adapting the regional and local stratigraphic schemes for the purposes of geological mapping; - applying the geophysical methods in prospecting and exploration and geological mapping; - the ability to independently use advanced computer technology to solve research and production and technological tasks in professional activity; - using the petroleum-zoning principles; time deposits classification of reserves, promising and forecast resources of oil and combustible gases; - Establishing the reserves category, perspective and expected resources; groups oil and gas reserves that have commercial value; - extracting from the seismic data more complete and reliable information. 	<ul style="list-style-type: none"> - analyzing the diverse information on the geological structure and geological development of the planet in terms of existing theories and hypotheses; - identifying the trends in the development of a direction of biological science; - learning to navigate complex issues of Petroleum Geology, develop skills and ability necessary for self-analysis and creative generalization of evidence in the course of research or production activities; - improving the innovations in the field of Geology.

The following **curriculum** is presented:

Course	Discipline code	Discipline description	Credit q-ty	Term	Control form
1	2	3	4	5	6
GES	General education subjects		20		
MC	Mandatory components		8		
	IFN 5201	History and philosophy of science	2	1	Exam
	IYa 5202	Foreign language (professional)	2	1	Exam
	Ped 5203	Pedagogics	2	1	Exam
	Psi 5204	Psychology	2	1	Exam
SC	Selectable components		12		
MC	Mandatory components		22		
BC	Basic subjects		2		
	SPG 5301	Modern problems of geology	2	2	Exam
SC	Selectable components		20		
	The results of the theoretical training		42		
AET	Additional education types		Not less than 13		
PPR	Practice (pedagogical, research)		Not less than -6*		Report
SRWM	Scientific - research work of master, including the implementation of the master's thesis		Not less than -7*		Report
FA	Final Assessment		4		

0 Appendix: Programme Learning Outcomes and Curricula

CE	Comprehensive examination	1	4	
	Registration and protection of master's thesis	3	4	
TOTAL:		Not less than -		
		99		