



**INDEPENDENT AGENCY  
FOR QUALITY ASSURANCE IN EDUCATION (IQAA)**

**EXTERNAL REVIEW REPORT  
BAKU STATE UNIVERSITY**

**PROGRAM ACCREDITATION  
060504 - Inorganic Chemistry**

**Nur-Sultan – 2021**

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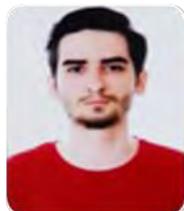
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**THE LEVEL OF COMPLIANCE OF THE SELF-ASSESSMENT  
REPORT WITH THE ACTUAL STATE OF THE EDUCATIONAL  
PROGRAM: 060504 - Inorganic Chemistry**

Standards	Indicate the level of compliance of the self-assessment report with the actual state of affairs at the higher education institution for each standard			
	Full compliance	Significant compliance	Partial compliance	Non-compliance
<b>STANDARD 1. POLICY IN THE AREA OF QUALITY ASSURANCE OF THE EDUCATIONAL PROGRAM AND ACADEMIC INTEGRITY</b>	+			
<b>STANDARD 2. DEVELOPMENT AND APPROVAL OF THE EDUCATIONAL PROGRAM, INFORMATION MANAGEMENT</b>	+			
<b>STANDARD 3. STUDENT-CENTERED LEARNING, TEACHING AND ASSESSMENT</b>	+			
<b>STANDARD 4. STUDENT ADMISSION, LEARNING OUTCOMES, RECOGNITION AND QUALIFICATIONS</b>		+		
<b>STANDARD 5. TEACHING STAFF</b>	+			
<b>STANDARD 6. LEARNING RESOURCES AND STUDENT SUPPORT</b>	+			
<b>STANDARD 7. PUBLIC INFORMATION</b>	+			

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## ***CHAPTER 1***

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### ***CONTEXT AND PURPOSE OF THE AUDIT***

#### ***Introduction***

An external visit of the expert group within the framework of the program accreditation of Educational Programs (EP) of Baku State University (BSU) was held from 15 to 16 March 2021.

The external audit was held in accordance with the program developed by IQAA and agreed with the university administration. All the materials necessary for the work (visit program, self-assessment reports of educational programs, program accreditation standards, etc.) were presented to the expert group members long before the visit to the university, which made it possible to timely prepare for the external assessment procedure. Also, preliminary videos were presented to familiarize with the University structure and educational and scientific laboratories. The self-assessment report of the educational program contains a large amount of information, where all areas of activity of structural units were analyzed in accordance with the standards of program accreditation; strengths and weaknesses are self-critically highlighted, threats and opportunities for further development are identified.

The meeting with the University leadership provided an opportunity for the expert team to officially get acquainted with general characteristics and achievements of the University in recent years. The planned activities for the external visit contributed to a more detailed acquaintance with the material-and-technical, educational-laboratory and research base, the teaching staff of the departments in the areas of accredited educational programs, master students, graduates and employers.

Meetings of expert group members with the dean and heads of the departments, teachers, master students, graduates and employers. This enabled external experts to conduct an independent assessment of compliance of the data in the self-assessment report of educational programs with the actual state of affairs of the university and with the criteria for program accreditation standards.

The experts examined main departments of the University involved in the organization of educational and research processes, the library fund, departments and department research laboratories in the areas of accredited educational programs. In the process of conducting an external audit, the experts studied the documentation of departments, selectively attended on training classes (online) in the areas of accredited educational programs to get a more detailed acquaintance with the document flow, educational, methodological and material-and-technical support.

### ***Main characteristics of the higher education institution***

Baku State University is a national treasure of the Azerbaijani people, a temple of science and education, proudly fulfills its historical mission, preserving traditions and introducing scientific and educational ideas. It was founded in 1919 and operates based on the Charter, has state accreditation of July 7, 2017, No. 010 for the right to conduct educational activities in the field of higher and postgraduate education in 74 bachelor's specialties, 235 magistracy specialties, 114 doctoral specialties.

Baku State University positions itself in the educational service market as the leading university in Azerbaijan and as the only higher educational institution in Azerbaijan, included in the list of world's top universities. The educational process is organized following the normative documents of the Ministry of Education and the Cabinet of Ministers of Azerbaijan.

The university's activities are aimed at dynamic development of internationalization, gaining the status of an international university, as well as an advanced research center. One of the main tasks of the research work internationalization is search for new international programs, university participation in the preparation and submission of individual and joint applications with foreign partners for research grants. According to the website, the university, within the framework of the Erasmus KA01, Erasmus KA02, Mevlana, Tempus programs, is working on the implementation of the project «Exchange between Turkish universities and other universities in the world, among teachers (professors) and students (undergraduates, doctoral students)». According to the program for attracting foreign specialists prominent scientists from world universities were invited to deliver lectures.

University structure includes 16 faculties, 121 departments, 2 research institutes and 2 research centers. The material and technical base of the university consists of 30 educational and 21 research laboratories, laboratory buildings with modern classrooms, computer classes; libraries with electronic reading rooms and free Internet access; an educational television studio; a sports complex with gyms and game rooms, a swimming pool, outdoor sports grounds, and spacious food outlets; hostels for students; medical clinic. Based on the university, there are also a lyceum of "Young talents" in the city of Baku, educational and practical centers in the city of Guba, and the village of Altiagach. The university has a corporate computer network designed to unite educational buildings into a single information space and provide access to information resources of the university and the Internet.

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**CHAPTER 2*****REPORT ON THE EXTERNAL REVIEW BY THE EXPERT GROUP******Compliance with the program accreditation standards******Introduction***

The Department of General and Inorganic Chemistry has been training specialists for various sectors of the national economy since 1919. The department mission is to carry out educational, scientific and research activities for training the scientific and scientific-pedagogical personnel with fundamental knowledge in the field of inorganic chemistry.

The department conducts training in the following specialties: Chemistry, Chemistry Teacher, Chemical Engineering in the bachelor program, Inorganic chemistry, Chemistry of solids in the master program, Inorganic chemistry in the doctorate program. The department "General and Inorganic Chemistry" has been training personnel for the master educational program since 1997. The department implements the educational master's program in accordance with the declared mission of the university, goals and objectives set out in the strategic plan.

The department teaching staff has a high scientific potential and many years of experience in educational, scientific and organizational work: the department employs 5 doctors of sciences, professors and 8 candidates of sciences, of which 5 are associate professors. The scientific management of master's theses is carried out by professors and associate professors of the department, as well as scientists from scientific institutes, the National Academy of Sciences of Azerbaijan and industrial enterprises who are involved in scientific research in the field of inorganic chemistry. Themes of master's theses correspond to the scientific directions of the department.

Teachers of the Department of Inorganic Chemistry are actively involved in scientific work, which is reflected in the publication of scientific articles in journals of the near and far abroad, peer-reviewed journals with an impact factor and proceedings of international scientific conferences. The department maintains close cooperation with leading organizations and enterprises of the country, such as SOCAR Production Association, Institute of Inorganic Chemistry and Catalysis, Institute of Petrochemical Problems of ANAS, Sumgait Technological Park, Institute of Additive Chemistry of ANAS. The results of scientific research of the department professors and their innovative developments are used in the educational process for teaching master students.

The contingent of the first year master students is 6, the second year master students is 3. 4-5 master students defend theses in Inorganic chemistry annually and are employed in this specialty. The Department of Inorganic Chemistry has an educational and scientific laboratory base, which provides for formation of the required skills and abilities of master students.

## **Standard 1. Policy in the area of quality assurance of the educational program and academic integrity**

### ***Analysis and evidence:***

Baku State University, being the largest leading higher educational institution in the Republic of Azerbaijan, organizes its activities in accordance with the stated mission and strategic development plan (posted on the website), which are aimed at training highly qualified specialists with fundamental and innovative knowledge in demand at the domestic and international level of labor market through the integration of education and research.

The policy of BSU in the field of the quality of education and science is an inherent element of the university's strategy and the basis for planning its educational activities. The main task in the field of education and science quality is improvement of the structure and content of educational programs, opening of new areas of training for personnel support of society needs based on knowledge. The department "General and inorganic chemistry" implements the policy of quality assurance in accordance with the accepted "Policy of the department for quality assurance of education", approved by the department meeting (Minutes No. 1, dated 14 September 2020). This document is available on the university website, as well as the Prospective Development Plan of the Department. The quality assurance policy of the educational program and requirements for its implementation are reflected in the document "Quality Management".

The "Inorganic Chemistry" educational program is developed taking into account quality criteria. To enhance the practical significance of the acquired knowledge and skills, employers are involved in the development of EP, who are also involved in teaching elective disciplines adapted to needs of the labor market, defining the topics of master's theses and supervising undergraduates. This contributes to improving the quality of training the masters. Representatives of scientific organizations and industrial enterprises are invited as the chairmen and members of the State Attestation Commission; employers are surveyed annually for satisfaction with the quality of training the students. This allows to get an external assessment of the quality of educational services provided and to make changes or additions to the EP to improve its quality.

The Educational Program is developed on the basis of the integration of educational activities and research in breakthrough areas in the field of inorganic chemistry. The teaching staff of the department participates in the implementation of funded research projects under 9 agreements on cooperation with enterprises and scientific organizations, and is also engaged in research on state budget topics, in which all master students participate. This is an important indicator in ensuring the program quality.

As indicated in the EP self-assessment report, during the academic year, the quality of the educational process is analyzed, namely curriculum, work programs of disciplines, teaching materials, catalog of elective disciplines. To get acquainted with

the last document, the curriculum of the specialty was presented with an indication of 5 elective disciplines without disciplines' description, prerequisites and post-requisites.

Monitoring and measuring the processes and controlling the quality of master students' knowledge enable to establish how educational processes and educational services meet the requirements of consumers. The effectiveness of the EP implementation, for example, results of master students' progress, results of practices and theses pre-defense are systematically discussed at the department meetings, recorded, and measures are taken to improve academic performance.

The results of sociological surveys are used to improve the quality of training the specialists, to improve the University development program. Assessment of the satisfaction of undergraduates with the quality of educational services is carried out by questionnaires using such questionnaires as "Teacher through the eyes of undergraduates" and "Satisfaction of undergraduates with the quality of the educational process organization".

The Department of Quality Assurance and Monitoring, conducts 2 times a year a questionnaire survey of students to assess the quality of teaching for each teacher according to a 5-point system; selective questionnaires in three languages of instruction were submitted to the expert group for consideration. During virtual examination of the department, books with student questionnaires in the training areas in electronic and written form were also shown. However, the results of such a survey can be used only in the certification and election of the teaching staff to the position or in stimulating their work. At that, there is no student-teacher feedback; to improve the educational process, extended questionnaires should be used on the satisfaction of students with educational, scientific, methodological, social and other works with the possibility of selecting one answer out of 4 or 5. Processing of such questionnaires will allow the management and the Academic Council of the university look at the problem points in training the bachelors and masters and make changes in educational programs and teaching methods. A similar questionnaire is successfully used by the university to survey employers about their satisfaction with the level of knowledge and skills of graduates employed at a partner enterprise. In addition, manual processing of a huge number of questionnaires (according to the head of the department, about 30 thousand questionnaires yearly) is very laborious and ineffective. To simplify and intensify the process of questionnaire processing and, in general, to increase the monitoring efficiency, an automated system for processing questionnaire data using appropriate software should be introduced.

The University pursues an active policy to form and develop an anti-corruption worldview. The BSU Academic Council has approved the "Ethical Rules of Conduct for University Staff" and "Rules of Conduct for Students" in May 2014/ The Rules represent the Code of Ethics for teachers, employees and undergraduates and their relationships, as well as the rules of conduct for undergraduates with representatives of external organizations. In order to ensure an academic integrity, the rector's blog is constantly functioning on the university's website to appeal to all participants on the educational process, to which the rector responds flexibly.

To counteract corruption and ensure the criteria for the training quality, webcams were installed in all classrooms, the educational process and examination sessions are constantly monitored by the Educational Department, which was demonstrated during a virtual visit to the departments of Organization of the educational process and Quality Assurance and Monitoring. Students have the opportunity to contact the Appeal Commission, the Hotline Service or the administration on issues of passing the examination session.

Implementation of checking master's theses for plagiarism or borrowing is carried out using the licensed program "AntiPlagiat" on the basis of an agreement concluded on November 16, 2017. with "Plagiat.pl" company and approved by the rector order R-07 of January 24, 2018. If plagiarism is found in more than 30% of the text, the applicant is not allowed to defend his thesis and is subjected to expulsion from the university.

***Positive practice:***

The integration of science and education, performance of master research on applied topics contributes to the improvement of the quality of training master students.

***Areas of improvement:***

It is recommended to diversify forms of surveys of master students, teachers and employers to use this feed-back to improve the quality of teaching; it should be also resolved the issue of applying the software for processing the results of questionnaire to simplify the procedure and intensify the yearly survey.

The activities of the Department of General and Inorganic Chemistry are conducted according to the stated mission and the university strategic and meets the criteria for assessing the 1-st standard.

**The level of compliance - Full compliance**

**Standard 2. Development and approval of the educational program, information management**

***Analysis and evidence:***

The development and approval of the Educational Program "Inorganic Chemistry" is carried out on the basis of the procedure "Management of the educational and organization process", No. 79 Resolution of the Ministers' Cabinet of the Azerbaijan Republic dated March 4, 2020, "On amendments to the Resolution of the Ministers' Cabinet of the Azerbaijan Republic No 88 dated May 12, 2010, "The content and organization of training in the magistracy and the rules for conferring a" master "degree"; No. 833-IIIQ Law of the Republic of Azerbaijan "On Education" dated June 19, 2009.

The EP structure was developed by the Centers for Organization and Management of the Educational Process and Organization of Scientific Activities and Innovations and approved by the University Academic Council. Organization of training in the magistracy is carried out according to the ECTS credit system on the basis of the rules approved by the Ministers' Cabinet of Azerbaijan "Rules for organizing the educational process in the universities of the Republic at the level of bachelor's and master's degrees on the credit system", in accordance with the requirements of state standards of higher education. The academic hours of the master's student's classroom work are supplemented by the corresponding number of hours of independent work, which is an important part of the educational process and forms the master student's needs for self-education and self-improvement.

Objectives of the Educational Program correspond to the mission and the strategic plan of Baku State University, developed in accordance with the National Qualifications Framework, priorities and needs of the regional labor market, reflect the requirements of the State Standard of Postgraduate Education in the specialty of Master's degree in Chemistry. The EP was compiled taking into account the requests and wishes of potential consumers - employers and undergraduates, it indicates the relationship between competencies and learning outcomes based on Dublin descriptors.

The curriculum covers a cycle of social and humanitarian disciplines and a cycle of major disciplines. To achieve the planned learning outcomes, the curriculum includes compulsory and elective disciplines, practice, research work of master students, and implementation of a master's thesis. The share of elective disciplines is 25%, of which the first cycle provides 1 elective discipline out of 4, in the second cycle - 4 disciplines out of 15. In credits, this amounts to 2 and 24 credits of elective disciplines out of 90 credits of theoretical training, respectively. Optional modules are determined taking into account the development of science and technology and the opinion of employers, due to which the master's degree program is significantly "sharpened" to the needs of employing companies.

Insufficiently wide choice of individual educational trajectories by undergraduates is dictated by the requirements of the State Compulsory Standard of Postgraduate Education, i.e. is compulsory. At the same time, during the interview, Vice-Rector for Organization of the Educational Process and Teaching Technologies Irada Aliyeva explained that the university is working in this direction under the leadership of the Ministry of Education of the Azerbaijan Republic, and the issue of the possibility of increasing the share of elective disciplines in the curriculum of the magistracy is under the rector control.

Annexes to the self-report include current syllabuses and working programs of the disciplines on the educational program "Inorganic Chemistry" in the Azerbaijan language, which contain all the necessary information for master students for studying the discipline. Working programs of disciplines are published by the decision of the Scientific and Methodical Council of the Ministry of Education.

According to the curriculum, the research work of a master student, preparation and defense of the master's thesis are provided for in the amount of 18 credits in the

4th semester. Taking into account the fact that in the 4th semester, master students pass pedagogical and research practice (6 credits each), there is not enough time left for the experimental work to complete the research, interpret the results obtained and publish them in two scientific articles, as well as prepare a thesis for defense. The resolution of this issue is also within the competence of the Ministry of Education, and the expert group hopes that it will be considered in the near future.

The procedure for compulsory updating of working curricula and working study programs at the university ensures the quality of training the specialists; it is based on the results of analysis of students' educational achievements and feedback from stakeholders. Evaluation and improvement of the educational program also includes intra-university quality control of teaching, management of educational-and-organization and educational-and-methodical processes at the administration, dean's office and department level. Academic achievements (knowledge, abilities, skills and competencies) of students are assessed on a 100-point scale.

***Positive practice:***

Educational programs are developed with the close collaboration of the department teaching staff with industrial enterprises and scientific organizations; employers participate in Educational program development and in training master students.

The educational program "Inorganic Chemistry" has been developed in accordance with the requirements of the State Educational Standard of Postgraduate Education in the Master's degree specialty "Chemistry" and meets the evaluation criteria of the 2-nd standard.

**The level of compliance - Full compliance**

**Standard 3. Student-centered learning, teaching and assessment**

***Analysis and evidence:***

Student-centered teaching involves creation of conditions for formation of an independent position among students in studying a discipline through the use of interactive teaching methods that stimulate master students to take an active role in educational and research processes. Master students have the right to choose the language of training, the ability to select an individual training trajectory, taking into account their interests and the profile of the enterprise - a potential employer.

Organization of registration for disciplines and electronic registration is carried out in accordance with the Decree of the Ministers' Cabinet of the Azerbaijan Republic. To organize the training process and conduct consultations to master students, a tutor is appointed who provides academic mentoring of the student throughout the entire period of study until its completion.

When choosing an elective discipline and a teacher, master students are assisted by a tutor who introduces them to the summary of the disciplines and the list of teachers

teaching the major disciplines. The individuality of the master student is determined by selection of the training trajectory, a topic of scientific research, the base of practice, which is reflected in the individual plan of a master student. The individual work plan of a master student is compiled for the entire period of study and includes an individual curriculum (IC), which, if necessary, can be updated annually.

Teachers of the department apply various innovative methods for teaching students to enhance their activities and develop critical thinking and interest in learning. At lecture classes, such forms of teaching as problem lecture, binary lecture, lecture with analysis of specific situations, lecture-press conference are used. The forms of independent work of undergraduates are of a research nature and are closely related to the thesis topic.

Education at BSU is based on cooperation, partnership and mutual respect between students, administration and teachers. Students' complaints are accepted by the dean, considered at meetings of the dean's office, at meetings of various levels, at meetings of students with the university leadership. To identify possible shortcomings in the educational process organization, surveys and questionnaires are conducted. To consider complaints and appeals of students, to resolve controversial issues, a "Trust Box" operates at the University. Academic groups are formed taking into account students' interests - in specializations (trajectories) and in training languages (Azerbaijani, Russian and English sectors).

Monitoring of academic achievements of undergraduates and assessment of their knowledge in academic disciplines or modules is organized by the tutor at the mid-term stages of the educational process (at the end of each academic period and academic year) and focused on the final learning outcomes. The tutor keeps a record of the history of educational achievements of students, which is reflected in their transcript of the established form.

Control of knowledge, abilities, skills and competencies of undergraduates is carried out during their final certification. An analysis of the results of certification and preliminary defense of undergraduates is considered at the department meeting and appropriate decisions are made. The general policy for undergraduates' assessment, including terms of assessment, assessment criteria, methods and forms of conduct, is reflected in syllabuses of each discipline, a guidebook and other regulatory documents.

The weak side of the SWOT analysis is the insufficient level of master's foreign language proficiency at the professional level, which confirms the absence of master's students participating in external academic mobility programs. The information presented on the page of the International Department contains all the necessary information for foreign students studying at BSU, however, there is no information on the website for BSU students wishing to participate in international programs of academic mobility.

### ***Positive practice:***

The university website provides complete information of the International Department on incoming mobility and Erasmus programs.

### **The level of compliance - Full compliance**

## Standard 4. Students admission, learning outcomes, recognition and qualifications

### *Analysis and evidence:*

The procedure for admission and formation of the student contingent is determined by the normative documents of the Ministry of Education and the "Law on Education" of the Republic of Azerbaijan. Recruitment of undergraduates for the EP "Inorganic Chemistry" is mainly implemented on a competitive basis on a government order. During the academic year, the dean's office and the department conduct organization career guidance work in order to clarify the prospects and demand for specialists in the field of inorganic chemistry, including at the university website, on television and in the newspapers "Azerbaijan", "Respublika", "Baku University", etc. For undergraduates studying in the international exchange program, there is all the necessary information on the university website on the International Department page.

Information about the teaching staff of the Department of General and Inorganic Chemistry, about the Educational Program, the laboratory equipment and devices used, educational and scientific work is posted on the page of the Department of General and Inorganic Chemistry at the University website in Azerbaijani, Russian and English (<http://chemistry.bsu.edu.az/ru/rub/kafedri/obshaya-i-neorqanicheskaya-ximiya>). However, social networks are not used enough to inform applicants for an educational master's program, which is noted as a weakness in the SWOT analysis according to standard 4.

The department has teachers who teach classes in English. The university has a center for psychological support for students, which is very important for the quick adaptation of foreign undergraduates who entered the BSU. Statistical data on students' progress, on graduates, on performance and defense of master's theses, the results of employment of graduates, satisfaction of employers with the quality of training graduates are formed by the Department of Master's and Doctoral Studies, the Career Sector and Alumni Relations. The demand for graduates of the EP "Inorganic Chemistry" has increased in Azerbaijan nowadays, since a new generation of highly qualified specialists in the field of inorganic chemistry is required.

The organization of the educational process of undergraduates is carried out by the Department of Organization and Management of the Educational Process in conjunction with the Department of Master's and Doctoral Studies, which is part of the Department of Organization and Analysis of Scientific Research. Information about the work of these departments, as well as about the Quality Assurance and Monitoring Department, is absent on the BSU website, there are no active links. During a virtual examination of departments, the experts found out that at the time of the audit, the university had not implemented an automated information system for managing the main processes, which greatly complicates the analysis of the educational achievements of students, the current monitoring of the educational process, and master students do not have a personal page in the information database.

All information about the current academic performance and final certification is entered into the electronic database manually, if necessary, the dean's office issues the transcript at the request of the undergraduate. For a timely assessment of the main indicators of the educational program implementation and making decisions on EP updating and improving, it is advisable to introduce an information management system of the university.

At the same time, it should be noted an important advantage in organizing the educational process at BSU in the distance learning conditions. All classes at all levels of education are conducted using the Microsoft Teams platform, implemented in the educational process in all educational institutions of Azerbaijan. Stable, uninterrupted work in this program significantly increases the effectiveness of classes and the assimilation of new knowledge by students.

The contingent of master students of "Inorganic Chemistry" EP is only 6 people in the 1st year of study and 3 people in the 2nd year of study, which requires the intensification of career guidance work with graduates of bachelor's degree in chemical specialties. As stated in standard 3, undergraduates of this EP have low level of English proficiency and, as a result, they do not participate in international academic mobility programs. However, international educational projects Erasmus + and Tempus are available at the university since 2013, which implement student exchange programs with universities of Turkey. Therefore, the efforts of the department and the university should be directed to the development of language competencies of master students and organization of training and implementation of scientific research in the framework of academic mobility or scientific internship. Due to the poorly developed system of outgoing academic mobility both within the country and in foreign universities, BSU has not developed a procedure for the recognition of higher education qualifications during study at other universities in accordance with the principles of the Lisbon Recognition Convention.

***Remarks:***

It is necessary to strengthen work to find ways and resources for international academic mobility of master students to involve them in research at the international level and to recognize their scientific results. There is no procedure for the recognition of higher education qualifications during the period of study abroad in accordance with the principles of the Lisbon Recognition Convention.

***Areas of improvement:***

An electronic data information system should be created to provide students with access to their personal page and for the operational analysis of student progress.

**Level of compliance - Significant compliance.**

## Standard 5. Teaching staff

### *Analysis and evidence:*

The teaching staff of the department has high scientific potential and many years of experience in educational, scientific and organization work: 5 doctors of science, professors and 8 candidates of science work at the department, of which 5 are associate professors. Scientific supervision of master's theses is carried out by professors and associate professors of the department, as well as scientists from scientific institutes, National Academy of Sciences of Azerbaijan and industrial enterprises who are engaged in scientific research in the field of inorganic chemistry.

A scientific school on inorganic chemistry was formed at the department under the leadership of Professor, Corresponding Member of ANAS P.G. Rustamov. Scientific work is currently carried out in the direction "Actual problems of modern inorganic materials science, including semiconductor materials science". Most of the scientific research is related to the study of phase equilibria in multicomponent systems. The topic of master's theses corresponds to the scientific directions of the department. To improve the level of knowledge and qualifications of undergraduates, highly qualified specialists from leading scientific organizations are invited. They are doctors of chemical sciences, corresponding members of the Academy of Sciences of the AR M.B. Babanly and E.I. Aliyev, who conduct classes with master students and supervise the master's research. Professors from foreign universities were not invited to deliver lectures and consultations to master students.

Teachers of the Department of General and Inorganic Chemistry are actively involved in scientific work. It is reflected in the publication of scientific papers in journals of near and far abroad, peer-reviewed journals with an impact factor and proceedings of international scientific conferences. The department maintains close cooperation with leading organizations and enterprises of the country, such as SOCAR Production Association, Institute of Inorganic Chemistry and Catalysis, Institute of Petrochemical Problems of ANAS, Sumgait Technological Park, Institute of Additive Chemistry of ANAS. The results of scientific research of the teachers of the department and their innovative developments are used in the educational process when teaching master students.

The teachers are involved in implementation of international scientific projects: Russian Fund of Research (Russia) - 2 professors, Solid state in inorganic compounds (Turkey) - 1 professor, New materials (Russia) - 2 professors. At the same time, the teachers passed qualification development in 2016-2019 only at the Institute of Inorganic Chemistry and Catalysis of Azerbaijan. Not a single teacher has passed scientific training in foreign universities or research centers.

At the department there is a problem of aging of scientific and pedagogical personnel; out of 13 teachers, only 2 people have not reached retirement age. The rest of professors and associate professors have vast professional experience, a powerful store of scientific knowledge, which should be passed on to the younger generation to continue the scientific work of their mentors. As noted by the head of the department

Ilyasli Teymur Mamed, professors of the department attract their doctoral students to conduct laboratory classes in bachelor's degree to gain teaching experience; currently 3 PhDs can be recruited as faculty members. Doctoral students should be fluent in English, thereby the degree of teaching staff participation in scientific internship programs at foreign universities will be increased.

The teaching load of the teaching staff is at least 50% of the total load. The research work of the teaching staff is also important, the implementation of which accounts for up to 30% of the working time. To improve the quality of educational services on a systematic basis, open classes are held, mutual attendance of classes, questionnaires of undergraduates and colleagues, according to the results of which the teaching activity is assessed. Teachers use innovative developments and interactive teaching methods in the educational process.

***Positive practice:***

High scientific potential of the department teaching staff.

***Areas of improvement:***

We would like to wish to esteemed professors to provide for the professional training of young teachers who are fluent in English.

**Level of compliance - Full compliance.**

## **Standard 6. Learning resources and student support**

***Analysis and evidence:***

Development of the material base and introduction of information and communication technologies is one of the strategic directions of the university. To support undergraduates in educational and research work, in solving social issues, the university operates all the necessary services: a library, sports complexes and gyms, reading rooms, electronic resource centers.

The Center for Career, Practice and Relations with Alumni organizes work to increase the share of employed graduates, regularly organizes round tables with employers to discuss issues of practical training of students, and organizes pre-university training and career guidance work with applicants. The department of magistracy and doctoral studies, together with the department, organizes and monitors the process of providing undergraduates with educational and methodological literature, provides academic support for undergraduates in the selection and development of an educational program, supports the rules of the credit system, informs about terms of registration for disciplines. The tutor and curators of the EP assist students in mastering the educational program.

The scientific supervisor, appointed by the university leadership, plans the scientific work of the undergraduate and coordinates the conduct of scientific

experiments. Educational consultations on independent work, dissertation work, consultations on all types of practice are included in the teaching load of teachers. The Center for the Bologna Process and Academic Mobility organizes the procedure for passing internal and external mobility of undergraduates. The main requirements for studying under the mobility program are knowledge of a foreign language and high academic performance. However, interviews with undergraduates, head of the department and teachers showed that undergraduates of the department do not participate in academic mobility, do not have sufficient information about international exchange programs, and the university does not organize free English courses. Perhaps the lack of support for undergraduates from the department of magistracy and doctoral studies is the reason of the lack of international academic mobility at the department.

The unified information and library fund is 2,114,841 copies, including 343282 copies in the state language of all types and types of publications, according to OP 060504 - "Inorganic Chemistry", the availability is 3300 copies, of which 1450 copies are in the state language, there are rare editions of books. The scientific library of BSU conducts information exchange with many university libraries of the Republic, with universities of the CIS countries and other countries of the world, with various publishing houses. Each student has access to the electronic library system. The educational information center of the university is presented in the Internet by the website [www.bsu.edu.az](http://www.bsu.edu.az). Students and staff of the university have the opportunity of daily free access to the Internet and access to electronic databases Scopus, Web of Science of peer-reviewed scientific journals. Undergraduates can also use the services of libraries of other universities and a scientific library of ANAS. All materials placed in the Electronic Library of BSU are available on the educational portal of BSU "Electronic Library", the website of the library [lib.bsu.edu.az](http://lib.bsu.edu.az). The number of simultaneous connections is not limited. The program "IRBIS 64" is used as software, which provides comprehensive automation of all library processes.

The material and technical base of the educational program "Inorganic Chemistry" is sufficient to provide a laboratory workshop and research work of master students. The infrastructure of the Department of General and Inorganic Chemistry includes all the necessary classrooms and laboratories, research laboratories, multimedia classrooms equipped with modern equipment and instruments, interactive teaching aids.

During the virtual examination, the laboratory "Inorganic materials science", the laboratory of catalysis, the laboratory "Spectral analysis for the study of crystals" were visited, in which laboratory classes of the department "General and inorganic chemistry" and experimental scientific work of undergraduates are conducted. To carry out physical-and-chemical research, undergraduates have the opportunity to use modern devices of the University Nanocenter. They are Cary Eclipse Spectrophotometer, FID Gas Chromatograph, ICP Spectrometer, Atomic Force Microscope, LC-MC Mass Chromatograph, Fourier Spectrometer, SF Perkin-Elmer Spectroscopy, Derivatograph with Mass Spectrometer, II-X-ray diffractometer Smart

Apexs, UV-vis (ultra-violet spectrophotometer), Nuclear magnetic resonance spectrometer BRUKER-300.

The laboratory material-and-technical base of the department and the information base of computer equipment are constantly updated.

***Areas of improvement:***

Lack of student participation in academic mobility programs, insufficient level of English proficiency for undergraduates. It is necessary to provide master students with relevant information and the opportunity to improve their English in free courses.

**Level of compliance - Full Compliance.**

### **Standard 7. Public information**

***Analysis and evidence:***

Information about the educational program "Inorganic Chemistry", teaching staff, educational-and-methodical documents in all disciplines of the department, scientific directions and history of the department are posted on the official website of the university [www.bsu.edu.az](http://www.bsu.edu.az), on the website of the Faculty of Chemistry, <http://chemistry.bsu.edu.az>, which contains the blog of the Department of *Инорганическая химия* Inorganic Chemistry. This page contains all the necessary information about the organization of classes and independent work of students. This information is available in three languages, which contributes to the attractiveness of the educational program. At the same time, some pages are available only in the Azerbaijani language, and many structural units do not have active pages on the university website, which causes a lack of information about the organization of the educational process, research and academic mobility programs. Social networks are not also used sufficiently to inform applicants for a master's degree program.

Public information about educational programs, quality of educational services and the university's achievements is carried out through the participation of heads of the department and faculty in television discussion programs and the publication of image articles in the newspapers "Azerbaijan", "Respublika", "Baku University". The media and the university's website regularly publish information about the employment of young specialists, analysis of trends in the development of the labor market, conducting trainings and seminars among undergraduates and graduates of the magistracy on teaching skills for successful employment.

Teachers actively use social networks for interactive communication with undergraduates. Each undergraduate has access to the materials of the educational program through his login and password, information about his educational achievements. The Department of General and Inorganic Chemistry actively promotes the goals and expected results of the EP through the official website of the



university [www.bsu.edu.az](http://www.bsu.edu.az) , through scientific conferences, round tables and other events.

***Areas of improvement:***

It is necessary to fill in the information on the university website and activate some links to increase the attractiveness of the educational program and improve the quality of educational services.

**Level of compliance - Full Compliance.**

## CHAPTER 3

### CONCLUSION

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**Remarks and areas of improvements of expert group by the end of the external review:**

**Standard 1. Policy in the area of quality assurance of the educational program and academic integrity - Full compliance.**

***Areas of improvement:***

It is recommended to diversify forms of surveys of master students, teachers and employers to use this feed-back to improve the quality of teaching, it should be also resolved the issue of applying the software for processing the results of questionnaire to simplify the procedure and intensify the yearly survey.

**Standard 2. Development and approval of the educational program, information management - Full compliance.**

**Standard 3. Student-centered learning, teaching and assessment - Full compliance.**

**Standard 4. Students admission, learning outcomes, recognition and qualifications - Significant compliance.**

***Remarks:***

It is necessary to strengthen work to find ways and resources for international academic mobility of master students to involve them in research at the international level and to recognize their scientific results. There is no procedure for the recognition of higher education qualifications during the period of study abroad in accordance with the principles of the Lisbon Recognition Convention.

***Areas of improvement:***

An electronic data information system should be created to provide students with access to their personal page and for the operational analysis of student progress.

**Standard 5. Teaching staff - Full compliance.**

***Areas of improvement:***

We would like to wish to esteemed professors to provide for the professional training of young teachers who are fluent in English.

**Standard 6. Learning resources and student support - Full Compliance.**

***Areas of improvement:***

Lack of student participation in academic mobility programs, insufficient level of English proficiency for undergraduates. It is necessary to provide master students with relevant information and the opportunity to improve their English in free courses.

**Standard 7. Public information - Full compliance.**

***Areas of improvement:***

It is necessary to fill in the information on the university website and activate some links to increase the attractiveness of the educational program and improve the quality of educational services.

**PROGRAM**  
**of the external audit of the IQAA expert group**  
**to Baku State University**  
**in the frames of program accreditation**  
**March 15-16, 2021**

<b>Time</b>	<b>Activity</b>	<b>Participants</b>	<b>Place</b>
<i>Day 1: March 15, 2021</i>			
9:50* (11.50**)	Arrival at the University	H, EG, C	Office of the EG
10:00-11:00 12:00-13:00	Briefing, discussion of organizational issues Conference ID: 838 3119 2769 Access code: 552348	H, EG, C	Office of the EG
11:00-11:30 13:00-13:30	Interview with the Rector of the University Conference ID: 854 7389 6620 Access code: 125267	H, EG, C, Rector	Rector's office
11:30-11:45 13:30-13:45	Discussion, exchange of views of the members of the external expert group Conference ID: 838 3119 2769 Access code: 552348	H, EG, C	Office of the EG
11:45-12:15 13:45-14:15	Interview with the vice-rectors of the University Conference ID: 858 2090 5751 Access code: 693521	H, EG, C, Vice-rectors	Conference hall
12:15-12:30 14:15-14:30	Discussion, exchange of views of the members of the external expert group Conference ID: 838 3119 2769 Access code: 552348	H, EG, C	Office of the EG
12:30-13:00 14:30-15:00	Interview with heads of structural divisions Conference ID: 869 3572 5154 Access code: 261678	H, EG, C, Heads of structural divisions	Office of the EG
13:00-14:00 15:00-16:00	Visual review of the material and technical, educational and laboratory facilities in the areas of accredited educational programs Conference ID: 815 5959 6052 Access code: 933557	H, EG, Dean of the Faculty, Heads of departments	Campus
14:00-15:00 16:00-17:00	Lunch	H, EG, C	
15:00-15:30 17:00-17:30	Interview with the Dean and heads of departments Conference ID: 824 4528 0501 Access code: 251321	H, EG, C, Dean, Heads of departments	Office of the EG
15:30-15:45 17:30-17:45	Discussion, exchange of views of the members of the external expert group		Office of the EG

	Conference ID: 838 3119 2769 Access code: 552348		
15:45-16:15 17:45-18:15	Interviews with teaching staff of departments in the areas of accredited educational programs Conference ID: 869 7440 8548 Access code: 683506	H, EG, C, Faculty	Office of the EG
16:15-16:30 18:15-18:30	Discussion, exchange of views of the members of the external expert group Conference ID: 897 4120 3259 Access code: 358042	H, EG, C	Office of the EG
16:30-17:00 18:30-19:00	Interview with Master students Conference ID: 896 5568 2898 Access code: 671822	H, EG, C, Master students	Office of the EG
17:00-17:15 19:00-19:15	Discussion, exchange of views of the members of the external expert group Conference ID: 897 4120 3259 Access code: 358042	H, EG, C	Office of the EG
17:15-17:45 19:15-19:45	Interview with graduates Conference ID: 817 1303 8190 Access code: 247804	H, EG, C, Graduates	Office of the EG
17:45-18:00 19:45-20:00	Discussion, exchange of views of the members of the external expert group Conference ID: 897 4120 3259 Access code: 358042	H, EG, C	Office of the EG
18:00-18:30 20:00-20:30	Interview with employers Conference ID: 842 0245 6595 Access code: 067112	H, EG, C, Employers	Office of the EG
18:30-18:45 20:30-20:45	Discussion, exchange of views of the members of the external expert group Conference ID: 897 4120 3259 Access code: 358042	H, EG, C	Office of the EG
<b>Day 2: March 16, 2021</b>			
9:50* (11.50**)	Arrival at the University	H, EG, C	Campus
10:00-11:00 12:00-13:00	Visit to the Center for the organization and Management of the educational process. Selective attendance of lessons Conference ID: 832 4392 2078 Access code: 421668	H, EG, Staff, Faculty, Master students	Office of the EG
11:00-11:15 13:00-13:15	Discussion, exchange of views of the members of the external expert group Conference ID: 883 4661 9805 Access code: 581917	H, EG, C	Office of the EG
11:15-12:15 13:15-14:15	Selective visits to research laboratories Conference ID: 851 6199 0704 Access code: 708774	H, EG, C, Representatives of practice bases	Office of the EG
	Invitation of heads of departments at the request of experts:	H, EG, C	Office of the EG

12:15-12:45 14:15-14:45	1. Head of the Department of "General and Inorganic Chemistry" - Teymur Ilyasly, Doctor of Chemical Sciences, Professor		
12:45-13:15 14:45-15:15	2. Head of the Department of "Analytical Chemistry" - Famil Chygarov, Doctor of Chemical Sciences, Professor		
13:15-13:45 15:15-15:45	3. Head of the Department of "Physical and Colloidal Chemistry" - Eldar Akhmedov, Doctor of Chemical Sciences, Professor Conference ID: 860 1280 7958 Access code: 885973		
13:45-14:00 15:45-16:00	Discussion, exchange of views of the members of the external expert group Conference ID: 883 4661 9805 Access code: 581917	H, EG, C	Office of the EG
14:00-15:00 16:00-17:00	Lunch	H, EG, C	
15:00-18:30 17:00-20:30	Discussion, exchange of views of the members of the external expert group. Investigation of documentation on accredited educational programs. Invitation of individual representatives of departments and structural divisions at the request of experts. Preparation of external audit reports Conference ID: 883 4661 9805 Access code: 581917	H, EG, Heads of Departments, Heads of structural divisions	Office of the EG
20:30-21:00	Meeting with the Head and managements of university to present preliminary results of the external audit Conference ID: 835 8297 0734 Access code: 558648	H, EG, C	Rector's office

NB: H – Head of expert group, EG – expert group, C – coordinator

\* Baku, Azerbaijan time

\*\* Nur-Sultan, Kazakhstan time

**INTERVIEW PARTICIPANTS**

**Responsible for the programme accreditation**

<b>№</b>	<b>Full name</b>	<b>Position</b>	<b>Academic degree, title</b>
1	Abdulsaid Azizov	Dean	Doctor of Chemical Sciences, Prof.

**University Leadership**

<b>№</b>	<b>Full name</b>	<b>Position</b>	<b>Academic degree, title</b>
		<b>Rector</b>	
1	Elchin Babaev	Rector	Doctor of Philosophy in Physics and Mathematics, Associate Professor
<b>Vice-rectors</b>			
2	Irada Alieva	Vice-rector for the organization of the educational process and learning technologies	Doctor of Biological Sciences, Professor
3	Gussein Mamedov	Vice-rector for Science and Innovation	Doctor of Physical Sciences, Professor
4	Shahin Panakhov	Vice-rector for international relations	PhD in Geography, Associate Docent
5	Alish Agamirzaev	Vice-Rector for Social Affairs, Student Affairs and Public Relations	Doctor of Philosophy in Philology, Docent

**Heads of structural divisions**

<b>№</b>	<b>Full name</b>	<b>Position</b>	<b>Academic degree, title</b>
1	Adil Khassaev	Head of the department of organization of the educational process	Candidate of Geological and Mineralogical Sciences
2	Farkhad Aidynly	Head of the department for work with tutors	
3	Vagif Gassymov	Head of Quality Assurance and Monitoring Department	PhD in Physics and Mathematics
4	Arif Sadykhov	Head of the Psychological Aid Sector	
5	Ramin Samedov	Head of the Department of Humanitarian Affairs and Youth Policy	
6	Mais Suleimanov	Director of the Center for Organization of Scientific Activity and Innovation	Doctor of Physical and Mathematical Sciences
7	Afet Mamedova	Head of the Department of Master's and Doctoral Studies at the Center for Organization of Scientific Activity and	Doctor of Biological Sciences, Professor

		Innovation	
8	Rauf Gassanov	Head of the Department of International Relations	Doctor of Philosophy in Historical Sciences, Docent
9	Azbar Sadaev	Information Technology Center Director	Candidate of Physical and Mathematical Sciences, Docent
10	Shahin Askerov	Head of the Internet Technologies Department of the Information Technology Center	
11	Gunel Orudzhaliyeva	Head of Public Relations and Information Department	
12	Nigiyar Ismailova	Director of the Scientific Library	Doctor of Philosophy in Historical Sciences
13	Mustafa Muradov	Head of the Research Center for NanoResearch	Candidate of Physical and Mathematical Sciences, Docent
14	Iliyas Nasibov	Director of the Center for Student Scientific and Technical Creativity	

### Head of the Department

№	Full name	Position	Academic degree, title
1	Teimur Ilyasly	Head of the Department of General and Non-organic Chemistry	Doctor of Chemical Sciences, Professor

### Teachers

№	Full name	Position	Academic degree, title
1	Fuad Sadygov	Professor of the Department of General and Non-organic Chemistry	Doctor of Chemical Sciences, Professor
2	Nagi Yagubov	Acting Professor "General and Non-organic Chemistry"	Doctor of Chemical Sciences, Acting Professor
3	Ogtai Aliyev	Docent of the Department of General and Non-organic Chemistry	Candidate of Chemical Sciences, Docent
4	Rena Abbasova	Docent of the Department of General and Non-organic Chemistry	Candidate of Chemical Sciences, Docent
5	Kazym Aliyev	Docent of the Department of General and Non-organic Chemistry	Candidate of Chemical Sciences, Docent
6	Siyaba Mammadova	Teacher of the Department of General and Non-organic Chemistry	Candidate of Chemical Sciences
7	Zakir Ismailov	Senior researcher " Non-organic Materials Science" Research Laboratory	Candidate of technical sciences, Docent
8	Fuad Sadygov	Professor of the Department of General and Non-organic Chemistry	Doctor of Chemical Sciences, Professor

### Master students

№	Name and surname	Speciality, grade
1	Aidan Gassanova	«Non-organic chemistry» 1 grade p/c
2	Nazrin Dzhafarova	«Non-organic chemistry» 1 grade a/c

3	Shahnaz Mammedli	«Non-organic chemistry» 1 grade a/c
4	Giyulnura Babaeva	«Non-organic chemistry» 1 grade a/c
5	Nargiz Velieva	«Non-organic chemistry» 1 grade a/c
6	Sanam Efendiyeva	«Non-organic chemistry» 1 grade a/c
7	Khadidzha Mammedzade	«Non-organic chemistry» 1 grade a/c
8	Giyulnar Rzazade	«Non-organic chemistry» 2 grade a/c
9	Nigyar Alizade	«Non-organic chemistry» 2 grade a/c
10	Roia Muradova	«Non-organic chemistry» 2 grade a/c

### Employers' representatives

№	Name and surname	Place of work, position
1	Dilgam Tagiyev	Director of the Institute "Catalysis and Non-organic Chemistry"
2	Adil Garibov	Director of the "National Center for Nuclear Research"

### Graduates

№	Name and surname	Speciality, year of graduation	Place of work, position
1	Aida Gusseinova	«Non-organic chemistry» 2015 - 2017	Sungait city Secondary school number 8 Chemistry teacher
2	Ulviya Bairamova	«Non-organic chemistry» 2015 - 2017	Institute of Oil and Gas 28 May, Fikret Amirov 9
3	Sabuna Amrakhova	«Non-organic chemistry» 2015 - 2017	Secondary school №284 Bilajari village Chemistry teacher
4	Elchin Alizade	«Non-organic chemistry» 2015 - 2017	Secondary school named after N. Mustafayev, Hajigabul region, village Kurchulu Chemistry teacher
5	Samed Ibragimov	«Non-organic chemistry» 2016 - 2018	Guba region Hajiguseynli village Secondary school Chemistry teacher
6	Nubar Dzhamalova	«Non-organic chemistry» 2016 - 2018	Sheki region Secondary school Teacher
7	Aliyar Babazade	«Non-organic chemistry» 2016 - 2018	Doctoral student at the Department of Organic Chemistry
8	Leila Validzhanova	«Non-organic chemistry» 2016 - 2018	Lyceum "Eureka" Chemistry teacher
9	Giyuldasta Kerimli	«Non-organic chemistry» 2017 - 2019	Lyceum "STCAM Hədəf" Chemistry teacher
10	Liyaman Agaverdieva	«Non-organic chemistry» 2017 - 2019	Institute of Radiation Problems of ANAS

### *ANNEX 3*

#### **LIST OF ADDITIONAL DOCUMENTS**

1. Forms of questionnaires for survey of undergraduates, teaching staff and employers. Analysis of survey results.
2. Themes of research and educational projects, in the implementation of which the teachers of the EP "Inorganic Chemistry" participate.
3. Master's theses on EP "Inorganic Chemistry".
4. Documents for the internship of the teaching staff of the EP "Inorganic Chemistry" in foreign universities.
5. Invitation of scientists from foreign universities.
6. Curriculum for EP "Inorganic Chemistry".
7. Catalog of elective disciplines.
8. Individual curriculum of 1st and 2nd year undergraduates.