

**European Chemistry
Thematic Network Association**



Site Visit Report

For the application for the

CHEMISTRY Euromaster® LABEL

of the

St. Petersburg University

Institute of Chemistry

for the study programme

04.04.01. Chemistry (MSc in Chemistry)

Report on the site visit to the St. Petersburg State University, in connection with the application for the Chemistry Euromasterr® Label.**Assessment Team**

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Date and schedule of the site visit

16-18 September, 2019

Schedule of the site visit, 16th September, 2019, St. Petersburg, University nab., d. 7 / 9

13:00- 14:00 - Excursion to the Archival Museum of D. I. Mendeleev

14:00-19:00 Internal meeting of the expert group and coffee-break

Schedule of the site visit, 17th September, 2019, St. Petersburg, University nab., d. 7 / 9, The building of 12 collegia

09:00 – 10:00 Internal meeting of the expert group

10:00 – 12:00 Meeting of expert team’s members with the HEI administration.

12:00 – 14:00 Lunch, transfer to Peterhof

Change of location to Peterhof, University Avenue 26, Institute of Chemistry SPBU

14:00 – 15:00 Evaluation of the material and technical base, tour on the library, laboratories, computer classrooms etc.

15:00 – 15:10 Coffee-break

15:10 - 16:00 Interview with Heads of Bachelor and Master programs in Chemistry

16:00 - 16:10 Coffee-break

16:10 - 17:10 Interview with students

17:10 – 17:20 Coffee-break

17:20 – 18:20 Interview with teachers and employers, participating in program implementation

18:30 – 19:30 Work with documents

Schedule of the site visit, 18th September, 2019, Peterhof, University Avenue 26, Institute of chemistry SPBU`

9:00 – 9:30 Internal meeting of the expert group, coffee-break

9:30-10:15 Attending classes

10:15 – 10:30 Coffee-break

10:30 - 11:30 Meeting with employers

11:30 – 11:40 Coffee-break

11:40 – 12:30 Interview with working graduates

12:30 – 12:40 Coffee-break

12:40 – 13:25 Direct assessment of senior year students' competencies

13:30 – 15:30 Transfer to St. Petersburg, lunch

Change of location to Volkhovsky lane, 3

15:30 – 16:30 Final meeting of the expert group

16:30 – 17:30 Outcomes of the meeting

Persons seen during the site visit and subjects discussed

2.1. Rector, Director of Institute, Heads of Laboratories, Heads of Master and Bachelor programmes. Subjects discussed.

17th September, 2019

10:00 – 12:00 Meeting of the expert team with HEI administration.

Marina Lavrikova - The First Vice-rector for Educational and Methodical work.

Svetlana Begeza – The First Deputy of the First Vice-rector for Educational and Methodical work.

Irina Balova – Director of the Institute of Chemistry.

Viktor Sorokoumov - Chairman of the Educational and Methodical Commission.

Natalia Boyko - Head of the main Department for Educational and Methodical work.

Marina Solovyova - Head of Educational programs Department

Tatyana Frolova - deputy of Head of Educational programs Department.

Irina Grigoryeva - deputy head of Educational programs Department.

Vladimir Savinov - Head of the Department for work with youth.

Svetlana Surovtseva - Head of Practice and Employment Department.

Also programs' Heads, members of the working group, members of the Student Council.

Topics: social protection and student support; graduates' employment opportunity; career consulting, quality management

15:10 - 16:00 Interview with Chemistry Bachelor and Master programs' Heads

Viktor Sorokoumov - Head of Bachelor program, PhD in Chemistry, associate Professor, Institute of chemistry, Department of Organic Chemistry.

Olga Osmolovskya – Head of Master program, PhD in Chemistry, associate Professor, Institute of Chemistry, Department of General and Inorganic Chemistry

Topics: Curriculum; program objectives; the learning process; the competency assessment system; teaching and learning methods, reviews of the staff members on their courses (methods of teaching, schedule, curricula, assessment, advanced educational methods).

2.2. Students, teachers and employers' representatives, participating in program implementation. Subjects discussed.

16:10 - 17:10 Interview with students

Anton Bannih – Master of 2nd year, interdepartmental laboratory of pharmacological Chemistry.

Appolinaria Juja – Master of 2nd year, interdepartmental laboratory of biomedical Chemistry.

Marina Hazanova – Master of 1st year, interdepartmental laboratory of biomedical Chemistry.

Timur Zannahov – Master of 1st year, Department of organic Chemistry.

Topics: Curriculum; program goals; learning process; competency assessment system; teaching and learning methods; the ability to influence the curriculum;

17:20 – 18:20 Interview with teachers and employers, participating in program implementation

Aleksey Timoshkin - PhD in Chemistry, Professor and acting Head of the Department of General and Inorganic Chemistry, Head of the RNF grant.

Andrey Shishov - PhD in Chemistry, senior lecturer, Department of Analytical Chemistry.

Mikhail Novikov - Doctor of Chemistry, Professor, Department of Organic Chemistry.

Igor Prikhodko - PhD in Chemistry, associate Professor at the Department of Physical Chemistry,

member of the Educational and Methodical Commission.

Mikhail Voznesensky - Ph. D. of Physical and Mathematical sciences, ssociate Professor at the Department of Physical Chemistry.

Peter Tolstoy - PhD in Chemistry, Professor, Department of physical chemistry, Head of the RNF grant.

Olga Bakulina - PhD in Chemistry, assistant, Department of Organic Chemistry.

Anastasia Gowdy - PhD in Chemistry., researcher, Department of Organic Chemistry, Head of the RSF grant, Supervisor of Bachelor and Master programs.

Regina Islamova - PhD in Chemistry, Professor, Department of Chemistry of high molecular compounds.

Anastasia Penkova - PhD in Chemistry, associate Professor at the Department of Analytical Chemistry.

Alexey Povolotsky - Doctor of Physical and Mathematical Sciences, associate Professor at the Department of Laser Chemistry and Laser Materials science.

Dmitry Kirsanov – Doctor of Chemical Sciences, Professor at the Department of Analytical Chemistry.

Topics: Degree profile, curriculum, items in self-evaluation report:, the aim and the main tasks of the program, skills, competencies and their relation to courses, ratio of practical courses, timing and prerequisites of thesis, a regulations on assessment, access of students to institutional facilities, academic year, trends of last years, PR activity of the institute, employability, safety regulations for Master students, transparency database.

18th September, 2019

10:30 - 11:30 Meeting with employers and other social partners

Vera Kulakova - Manager of LLK-international recruitment (project Manager Perspective), evaluation and development of personnel, social partner and employer, inorganic and physicochemical orientation, a representative of the company is in the Educational program Council.

Pavel Elagin– PhD in Chemistry, Head of the Department of development of chemical technologies of active pharmaceutical substances of JSC "BIOCAD", employer, analytical and organic field, social partner.

Denis Nilov– PhD in Chemistry, Director of science, JSC " Active Component", employer, analytical and organic field.

Maxim Borovikov– PhD in Chemistry, Deputy Director of the science service of JSC

"VERTEX", analytical and organic orientation, member of the Council of educational programs, employer.

Yuliya Skurkis - PhD in Chemistry, Scientific Secretary of the Institute of macromolecular compounds RAS, Academic employer, social partner.

Anatoly Khripun - PhD in Chemistry, Deputy Head of sales Department LLC Analit products, employer, analytical orientation, social partner (scholarship Analit – Shimadzu).

Alexander Sedov – PhD of Technical Sciences., SPC Standart Deputy General Director for science, social partner, the employer of inorganic and physico-chemical field, the member of Educational and Methodical Commission of WGSN 04.00.00.

Topics: the ability to influence the curriculum; satisfaction with the competencies of graduates; demand for graduates

2.3. Working graduates, masters of 2nd year, students of senior year. Subjects discussed.

11:40 – 12:30 Interview with working graduates

Alexander Sarnowski Gonzalez - engineer-technologist of OOO Scientific-production enterprise "VMP-NEVA», 2018 year of graduation, Department of General and inorganic Chemistry.

Maria Krylova - SPBU engineer-researcher, 2018 year graduate, interdepartmental laboratory of biomedical Chemistry

Yuri Mezenov - Saint-Petersburg National Research University of information technologies, mechanics and optics engineer, graduate of 2017, Department of General and inorganic Chemistry

Sergey Marchenko - OOO Farmamed research chemist, 2018 year of graduation, Department of Chemistry of natural compounds.

Tatiana Stelmashuck - Leningrad nuclear power plant 2 (LNPP-2), laboratory Assistant of Chemical analysis, 2019 year of graduation, Department of Electrochemistry.

Topics: Demand in the labor market after graduating from St. Petersburg State University, which competencies were lacking during employment

12:40 – 13:25 Direct assessment senior year students' competencies

All masters of 2nd year:

Nikita Hugin - Department of General and inorganic Chemistry

Alexandra Paderina - Department of General and inorganic Chemistry

Angelina Kazakova - Department of organic Chemistry

Alexander Ivanov - Department of Electrochemistry

Topics: Spectral methods are applied when writing a dissertation, processing of the results, planning the stages of a scientific project

Background of the Visit

St. Petersburg State University is one of the largest universities in Russia after MSU. M. V. Lomonosov and the oldest University in the country. St. Petersburg state University ranks 1st among all universities in St. Petersburg and 2nd in the ranking of Russian universities. Many famous scientists are graduates of St. Petersburg State University. It is considered to be the cradle of Russian science - many talented scientists in the field of Physics, Mathematics, Chemistry, who are laureates of the Nobel prize (I. p. Pavlov, I. V. Kantorovich, L. D. Landau, A. M. Prokhorov) came out of its walls.

In 1991, on the basis of a specialized Physics and Mathematics boarding school № 45 the Academic gymnasium of the University has been established. Now the Academic gymnasium is named after D. K. Faddeev and is included in the ratings of the leading schools in Russia, which trains SPBU future students.

In 2009, St. Petersburg state University was awarded the status of a unique scientific and educational complex, the oldest University in the country, which is of great importance for the development of Russian society. The special status of the University involves a separate line in the budget of the Russian Federation, the right to conduct additional testing on all major educational programs, the right to set its own educational standards, the right to confer its own degrees, the right to determine its own rules of competitions for positions of scientific and pedagogical workers, the right to issue its own diplomas, the appointment of the Rector of St Petersburg state University is made by the President of the Russian Federation.

The Institute of Chemistry of St. Petersburg state University was founded in 1929. It is an educational and research unit that provides training of a wide profile in specialties related to fundamental and applied research in the main areas of Chemical disciplines.

It includes 14 departments and three new interdepartmental laboratory: Biomedical Chemistry, Chemical pharmacology and laboratory Biohybrid technology, created in early 2018 by results of competition of Megagrants of the Russian Government. The Director Of the Institute of Chemistry is Irina Balova, Doctor of Chemical Sciences.

In continuation of the tradition of training at the Institute of Chemistry of St. Petersburg state University in Bachelor's, Master's and postgraduate programs, studies are conducted by teachers who are active in research, publish articles in prestigious international scientific journals, participate in foreign internships, manage projects supported by Russian and foreign scientific foundations. The Institute staff includes members of the RAS: academician A. Rusanov: corresponding member. V. Kukushkin, V. Stolyarova, N. Smirnova; Professor of the Russian Academy of Sciences And. Bokach, A. Bulatov, M. Krasavin.

The Institute of Chemistry provides education in the Bachelor's and Master's programs "Chemistry" and "Chemistry, physics and mechanics of materials." The program in the field of "Chemistry" is more focused on the model of classical University education and the formation of

competencies that require both deep fundamental knowledge in Chemistry and possession of practical skills in the application of modern experimental and theoretical methods. Teaching on the educational program of the Master's degree "Chemistry" is conducted in Russian and English.

Most of the lectures and practical classes are conducted by young scientists Ph.D. (under 35 y.o.) and Doctors of science (under 40 y.o.). At the same time, young scientists of the Institute of Chemistry are the Heads of 50% of projects supported by grants of RPF and RFBR.

In the educational process and for research at the world level, chemists at St. Petersburg University actively use a network of Resource centers of the Research Park, equipped with the most modern equipment.

Subjects discussed in the Self-Evaluation Report and during assessment

1. Judging the Quality of the program: “Fitness for Purpose”

The self-evaluation report presents the General goals, objectives of the educational program described in the framework of the Federal state standard for Master's degree in Chemistry and SPBU's own standard and the competencies formed during the whole period of study.

The self-examination report also provides a table of competencies generated within the educational program with Dublin descriptors, indicating that the program meets the ECTN requirements for learning outcomes. As part of the site visit to St. Petersburg state University, the competencies of master students were confirmed.

Since the structure of the program is unusual (due to the individual educational trajectory), it is logical to assume that the formation of various skills happens in the result of mastering of several disciplines, i.e. in a multifaceted way. The self-evaluation report also presents the process of formation of General, practical and theoretical skills in the field of Chemical science (universal, academic and practical competencies in terms of internal educational standard of SPBU respectively) in accordance with the structure of the program and the organization of the educational process:

General skills.

In accordance with self-examination report, all universal competencies are mastered in the basic part of study (Such as ability to carry out a critical analysis of problem situations on the basis of a systematic approach, to develop a strategy for their solutions and actions required, the skills necessary for continuous professional development).

The formation of «soft skills» as a part of general skills (Such as teamwork skills, communication skills, ability to interact with scientists from other disciplines on cross-disciplinary or interdisciplinary issues) are mainly formed in the research work, during the graduation project preparation and defense of a master's thesis, which are held in the fourth semester. They also form the ability to objectively assimilate, evaluate and present research results.

Practical and theoretical skills.

Academic and professional competencies, which correspond to practical skills and theoretical skills, are mainly formed in the development of the variable part (semi-optional and elective disciplines).

2. Study Program Structure

The structure of the program is presented in the self-evaluation report in the form of table 1. It should be noted that in the presented form the program is very difficult to perceive. This is due to the presence of a large number of disciplines and modules, which demonstrates an excessive academic workload of students. However, during the interview with students, experts found that they do not consider this workload excessive, despite the fact that they study 6 days a week.

The self-evaluation report describes among other advantages of this program its flexible curriculum, consisting of a set of courses both of fundamental and practical orientation, which allows the student to form an individual educational trajectory to obtain competencies based on his/her interests and the desired field of work. This meets the requirements of ECTN, as each institution providing master's programs in Chemistry, has complete freedom of choice of content, nature and organization of their courses or modules.

Indeed, it is necessary to take into account the fact that the training of students is realized by means of individual educational trajectories with a small number of compulsory disciplines (disciplines of the basic unit) and an overwhelming number of semi-optional disciplines (disciplines of the variable unit).

Education is based on the principle of parallel study of all selected areas of Chemistry with a consistent transition from General scientific to professional disciplines. This approach allows forming a large number of competencies during one semester. In addition, the implemented structure of the curriculum allows achieving the desired learning outcomes by students with both low and high levels of basic knowledge.

The educational program provides training in 14 areas: Inorganic Chemistry, Analytical Chemistry, Organic Chemistry, Physical Chemistry, Electrochemistry, High Molecular weight compounds, Colloidal chemistry, Radiochemistry, Kinetics and catalysis, solid state Chemistry, Inorganic profile, Analytical profile, Organic profile, Physical and Chemical profile. It determines the set of semi-optional and elective disciplines.

The credit system in Russia differs from ECTS. A Russian credit (36 academic hours) equals to 1.44 ECTS (25 academic hours). Thus, the total labor intensity of the entire program is 120 credits, which is the maximum value for the master's program according to ECTS.

3. Language

In accordance with self-evaluation report, the educational program can be conducted in Russian and English at the student's choice. In the 3rd semester 2 credits must be obtained by studying subjects in English. St. Petersburg state University offers students the opportunity to study 3 languages (English, German and French) with different levels of training. It also provides the

opportunity of learning Russian as a foreign language for students from other countries (discipline [041958] Russian as a foreign language). The presence of a large number of disciplines in English allows students to practice their abilities and skills in the field of foreign languages for the formation of communication skills.

4. ECTS and Student Workload

The workload is detailed in the application. The academic year consists of the autumn semester and the spring semester. The complexity of the individual educational trajectory (basic unit included) is as follows:

The 1st semester includes the basic unit which awards 12 credits and from 18 credits by the variable part. In the 2nd and 3rd semesters the basic part awards 10 credits and the variable part - 20 credits. The 4th semester is fully devoted to the implementation of the master thesis and gives 24 credits + 6 credits for the defense of the master thesis, which is equal to 30 credits.

In accordance with the educational standard of St. Petersburg state University, the total load of a student per week does not exceed 54 hours, of which the classroom load take 22 hours. From 30 to 50% of the classroom load is devoted to lectures.

Students spend 32 weeks per year and no more than 54 hours per week for a total of no more than 1,728 hours per year. This value exceeds the recommended workload size (approximately 1500 hours).

The workload of students is determined by the Federal educational standard and the educational standard of St. Petersburg state University. On the basis of students' survey, the Head of the educational program may decide to redistribute hours for various activities within the discipline. At the end of each semester, a meeting of the Head of the EP with students enrolled in this program is organized in order to identify shortcomings of the educational program, the nuances associated with the distribution of workload for some disciplines, especially the distribution of hours for lectures, practical classes and independent work.

During the site visit, it was found that students take the initiative on the redistribution of hours between types of educational activities (lectures, workshops, independent work) by organizing a meeting with the Head of the EP and discussing their questions, wishes, recommendations for the implementation of the educational process for the joint achievement of mutual understanding and compromise on the discussed aspects. As a result of the meeting, the curriculum of the program is revised, approved and introduced into implementation for the next semester.

Similarly to the Bachelor's degree, the Master's degree consists of 3 parts: the basic part, the variable part and the block of elective disciplines. The basic part of training awards 56 credits, taking into account the implementation of the Master Thesis, which is the basic unit in the last semester of the 2nd year. It should be noted that the implementation of Master Thesis gives 30

credits, 6 of which is given to the procedure of defense before the State Examination Commission. In contrast to the Bachelor's degree, in the educational program of the Master most of the credits are allocated to the disciplines that make up the variable part (62 credits). Practical training awards 36 credits.

5. Modules and Mobility of students and staff

Student mobility is possible throughout the period of study. The maximum period of study abroad is 1 semester.

In order to determine the participants of academic mobility Programs, a Competition is held for the participation of St. Petersburg state University students in academic mobility programs implemented within the framework of interuniversity agreements. Master's students of St. Petersburg state University are allowed to participate in the Competition, if the period of their participation in the academic mobility Program does not coincide with the last period of study of the final year.

However, during the site visit it was found out that there are certain difficulties with acceptance of the results of study received by the student abroad, connected with various systems of assessment of knowledge of the student. Therefore, it is recommended to search for new foreign partners for the mobility of students in the framework of scientific and educational collaborations, as well as to make a table of correlation of foreign (European) assessment system with the Russian one.

During the site visit, it was noted that the Teaching staff of the Institute of chemistry is actively involved in the mobility program in the framework of various trips abroad. Over the past 3 years, 53 scientific trips of representatives of the teaching staff were carried out, organized within the framework of international scientific collaborations, research works on grants implementation, research internships, participation in international conferences. Teachers of the Institute of chemistry also act as guest lecturers in foreign universities. For Example, Alexey Timoshkin (Professor of General and Inorganic Chemistry Department) was a guest lecturer at Saitama University (Tokyo, Japan) in 2018, Elena Gracheva (associate professor of General and Inorganic Chemistry Department) took part in research within the framework of R & D under the grant of RPF No. 16-13-10064 (12.53.908.2016) at European XFEL in Hamburg in 2018, Igor Zenkevich (professor of Organic Chemistry Department) participated in scientific work at Lappeenranta University of Technology in 2017.

Also It should be noted that some teachers also act as experts in international accreditations of other educational programs implemented by universities abroad.

6. Methods of Teaching and Learning

The MSc programme is oriented on outcomes achievement and research. The outcomes are reached both by traditional methods (frontal lectures, lab work and reports, seminars) and new didactic methods (focusing on problem solving, team work, research based learning, presentations). The most of the lectures are coupled with seminars. There are projects and presentation tasks for every courses, e.g. on synthesis of given compounds, (food) analytics of a group of compounds. The labs are often coupled with seminars on the actual lab tasks. During the thesis work and research projects there is a teaching/part-time supervising hierarchy within the groups as supervisor-> PhD students -> MSc students -> BSc students. This hierarchy is mostly applied on practical skills as syntheses and instrumental work. We concluded that the staff of the faculty willingly uses new didactic methods. Even in the case of basic courses team and individual tasks are given. The existing cooperation between the teaching staff and the students is a prime driving force of the training and it creates a friendly and fruitful environment for research.

7. The resources available for this programme (laboratories, library, ICT, advanced instrumentation)

The Institute of Chemistry moved to St. Petersburg state University's Peterhof campus in 1985. It occupies a certain part of the campus, on which there are premises and territory allocated only for it. The main building has 4 floors, which house a large classroom Fund, laboratories, library and administrative offices.

In the basement there is a Research Park and a laboratory of physical and chemical methods of analysis, the size of which is amazing. The resource center has more than 500 modern analytical and testing types of equipment. They ensure the possibility of fundamental and applied research implementation. The access is provided to all students during practical laboratory classes and all students involved in research projects.

The campus also has a research library named after M. Gorky, which resources provide the educational process with a sufficient number of basic and additional educational literature, as well as scientific periodicals. It should also be noted that students have access to electronic information library resources, where they can find all educational literature in electronic form, as well as to get acquainted with modern world scientific periodicals, including scientific and educational literature in foreign languages.

The classrooms of the Institute of Chemistry are in poor condition. During the site visit, it was found that a significant part of the lecture halls requires cosmetic, and in some cases, major repairs. In some classrooms, there is no good lighting, and therefore students can hurt their eyesight. Also it is very cold in the building of the Institute. Some of the laboratories (training)

are also in need of repairs.

8. Laboratory safety

Students learn the basics of Chemical safety on Bachelor's program, but despite this, at the beginning of each laboratory session there is an instruction on safety, as well as on how to work in the laboratory, in accordance with the specifics of the procedures performed (work with flammable liquids, for example). It is worth noting that students are not allowed to work alone in the laboratory: there should always be at least 2 people in the laboratory. However, during the site visit, we did not notice the presence of a laboratory safety journal, in which at least once a year laboratory workers should leave their mark. While working in laboratories, students are not provided with all personal protective equipment (for example, there are no safety glasses). It would be the right decision to provide all the necessary protective attributes, as well as to audit the safety and working rules in the laboratory at least once every six months and put a mark in a safety journal.

9. Assessment Procedures and Performance Criteria

Exams are held at the end of each semester. The final exam in all disciplines at the end of training is not provided. . Students pass most of the exams orally, which contributes to a better assessment of knowledge.

Depending on the volume of discipline, the number of teachers as examiners varies from 1 to 6 people, which provides an objective assessment of the student's knowledge. When passing the exam, the student is given feedback in the form of correct answers. Written exams are mainly conducted in the form of tests, the assessment is the responsibility of the teacher.

In the syllabus of each discipline there is information about the form of assessment – either in a form of exam or test. The list of questions for the test / exam, examples of tasks, the duration of preparation for the answer, whether the student can or cannot use educational literature, lecture notes, smartphones, communications, etc. during the preparation are also indicated.

There are disciplines that are presented in several modules. In this case the module itself is evaluated, taking into account the different weighting factor of the disciplines.

The assessment "excellent" is put if the student showed deep knowledge of a subject, gave exhaustive answers to the questions put, is capable without preparation or after small expenses of time to answer additional questions. Evaluation "good" is given if the student confidently knows the material, but the response misses some significant material; insecure way of answering

additional questions. The assessment "satisfactory" is given if the student needed tips in questions, can formulate the main points, but is unable to give the full answer; couldn't answer additional questions. If the student is unable to answer the questions, he is given a grade of "unsatisfactory".

Master Thesis is an independent study of the student, carried out under the supervision of his appointed supervisor, in accordance with the established requirements. The Master Thesis should contain the title page, contents, introduction, literature review, experimental part, discussion of results, conclusions and list of cited literature.

Defense of Master Thesis is a student's speech before the State examination commission with a report for 10 minutes (for Bachelor Degree) and 15 minutes (for Master Degree), in which he/she briefly highlights the relevance of his/her work, its main goals and implementation plan, the results obtained during the implementation of the practical part, and their interpretation in accordance with the available knowledge in the field of Chemical science. It should be noted that the State examination commission of Institute Chemistry is 100% composed of representatives of employers, which is a good chance for young Masters to demonstrate their high level of knowledge to potential employers. The results of the Master Thesis defense are determined by the grades "excellent", "good", "satisfactory" and "unsatisfactory". The State Examination Commission evaluates Master thesis on the basis of the following common criteria: the amount and quality of experimental and/or theoretical work of the graduate, the degree of achievement of the objectives of the Master thesis; the relevance of the work, the degree of scientific innovation; scientific literacy of the thesis and its presentation; oral report/presentation on the results of Master thesis; defense of the main provisions arising from the Master thesis, and confirmation of the competencies of the graduate.

10. ECTS Grades

Credit allocation tables under the ECTS credit system are used for all students. Credit distribution tables are presented in the transcript (a document issued on the results of training in exchange programs) and diploma Supplement for students undergoing training.

11. The Diploma Supplement

Each graduate receives the European diploma Supplement automatically. The diploma Supplement is written in Russian and English.

12. Quality Assurance

For Russian citizens and foreign citizens who have equal rights with Russian citizens a portfolio (motivation letter, essay, diploma, recommendations, publications, abstracts) is used as an entrance test. The portfolio assessment evaluates only the student's motivation to study, and his understanding of the educational program, but not the knowledge of Chemistry, as the program is designed for people with different levels of training.

For foreign citizens the entrance assessment is performed by the evaluation of the cover letter, Documents (certificates) confirming the necessary level of knowledge of the language in which the educational program is implemented, Documents (diplomas), confirming the participation in student competitions, the availability of scientific publications corresponding to the profile of the educational program, Documents and the materials confirming participation of applicants in research activities appropriate to the profile of the educational program, additional documents confirming the qualification.

The quality of teaching is assessed by the Quality Assurance Commission and on the basis of student surveys. The survey is organized by the Student Council of the Institute of Chemistry of St. Petersburg State University, held in the period from the beginning of the session until the beginning of the new semester, then in the new semester the student Council processes the data and publishes it on information stands and in the official VK group. Comments and ratings received in the course of the survey are sent to the Chairman of the EMC and the Director of the Institute of chemistry. The inclusion of students in the campaign to assess the quality of teaching is a significant parameter because the student is the central figure of the educational process. In this case, a very important role is played by the relationship of the teacher and the student, the degree of mutual understanding for the proper implementation of the educational process.

According to the results of surveys, quality assurance is performed through conversation with the teacher discussing a conflict situation or in recommendations to change instructional documentation, implementing or changing the course lecturer. Also, the component "quality of teaching" is considered as a component of the premium part of the teacher's salary.

During the site visit, it was revealed that the student Council has created and is constantly improving the system of assessing the quality of teachers' activities. After the end of the regular session, students are interviewed anonymously about the activities of each teacher according to certain criteria stated in the questionnaire. According to the results of the survey, a rating of teachers is built, which is publicly available for viewing both for the respondents themselves and for the persons whose activities were evaluated. In this case, teachers certainly do not have the right to influence the results of the survey. The results of this survey directly affect the activities of teachers in relation to their work at the University, as well as in relation to their recognition among students, which is important, especially when the student chooses the research group a member of which he/she wants to become.

13.. Numbers of graduates in the past five academic years and forecast for the next years

2017

Statements: St. Petersburg State University (40.8%), other universities (59.2%)

Enrolled: St. Petersburg State University (80%), other universities (20%)

Competition, people / place	Budget form	Contract form
Total	2.78	3
1 priority	2.22	0

2018

Statements: St. Petersburg State University (45.6%), other universities (54.4%)

Enrolled: St. Petersburg State University (84.5%), other universities (15.5%)

Competition, people / place	Budget form	Contract form
Total	2.53	4
1 priority	2.13	2

Programme	Total number of students (full-time education)	budget form of education	Target financing	paid form of education
04.04.01 Chemistry	46	45	0	1

14. Employability of the graduates during recent years and expectations for the future

Since the individual educational trajectory is aimed at the formation of competencies required by the employer, then the employment of the master is guaranteed.

The topics of the majority of final qualifying works within the framework of external and internal grants are suggested by employers, which emphasizes the relevance of the research conducted by graduates.

Close cooperation between the leading companies in the field of Chemical and Pharmaceutical

industry, Biotechnology allows to build a Master's educational program that meets the requirements of the labor market and to train professionals who have relevant and necessary knowledge, skills and abilities for a successful start of a professional career after graduation in the fields of Chemistry.

Thanks to the availability of individual educational trajectory, graduates can fulfill their potential as professionals in a wide range of areas: research chemist, quality control engineer, sales Manager of chemical reagents and equipment, operator of analytical equipment, HR-Manager of chemical and pharmaceutical companies, project Manager of chemical production, chemist-analyst for transfer and validation of analytical techniques, senior chemist in chemical companies, chemistry teacher in secondary education institutions. Or students can choose to continue their education in postgraduate studies.

During the site visit, experts found out that every year the Student Council organizes a job fair, which is aimed not only at the adaptation of graduates in the labor market, but at attraction of new employers, which is also crucial.

The State Examination Commission consists of 100% of employers, and their participation in the work of the Educational and Methodical Commission allows adjusting the criteria and requirements for graduates.

15. Ethical Concern

The requirement for Master thesis preparation in accordance with generally accepted ethical and legal norms is fair citation. Compliance with this requirement is reflected in the review of the scientific supervisor of the Master thesis on the basis of the results of the thesis check on the amount of borrowing, including meaningful identification of unauthorized borrowing.

For four years, functional groups have been successfully operating throughout the University to conduct initial analysis of dissertations and final qualifying works of students for the presence of text matches using SafeAssign – an integrated tool of the Blackboard system.

To address various issues (plagiarism, citation, originality and reliable results, interpersonal relationships), the Ethics Committee was formed at the University.

16. Are electronic media used for teaching, learning and/or assessment like EChem Test officially used in the Chemistry EuroLabel® programme?

The presence of electronic educational environment (Blackboard) positions St. Petersburg State University as a modern educational organization that follows the trends of modern education. The

transfer of some disciplines to the form of e-learning provides flexibility of the educational process.

These electronic courses are:

Adaptation and learning in the University (EE)

Digital culture: technology and security (EO)

In addition to this advantage, the electronic information and educational environment provides students and University staff with access to such library and information resources as the world's thematic journals in chemistry, which publish articles about modern and relevant research from different countries; electronic textbooks.

Also, this electronic system allows communication between all employees of the University, as well as between teachers and students.

Internal part

Conclusions

Graduates of the SPBU Master program are in higher demand among employers than graduates of Bachelor studies, since training is aimed at developing skills and competencies in accordance with the requests of employers. The flexibility of the program allows students with different levels of knowledge to apply for the program. Entrance tests are aimed not at a direct knowledge assessment, but at the student's motivation to study, at the formation of his professional choice. The motivation of students and the equipment of the scientific center allow preparing specialists capable to implement independent research projects.

Conditions

The high level of the teaching staff and the well-equipped scientific center contribute to the training of qualified specialists and scientists. Active participation of employers in the development and updating of the educational program and disciplines ensures the demand for graduates in the modern labor market.

Recommendations

- To increase the level of academic mobility of students.
- To improve the condition of lecture classes and educational laboratories, including its illumination and heating.
- To increase the quantity and quality of industrial practice.
- Ensure accessibility of education for people with disabilities.
- Solve the problem with the lack of licensed software required for research.
- To increase the number of free days for a better approach to the implementation of graduate qualification works in the last year of Master studies.
- Extend the working hours of the scientific center until 20 pm.