

AKKORK

Agency for Quality Assurance in Higher
Education and Career Development

Approved

Chairman of the Advisory Council

M. Shadrin

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REPORT

**on the results of the external evaluation of the educational programme
Chemical technology,
“Intensification of oil refining and petrochemical processes” profile
Master’s degree**

Samara State Technical University (SamSTU)

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SUMMARY OF THE PROGRAMME

The master's programme "Intensification of oil refining and petrochemical processes" is implemented within the framework of the field of study "Chemical technology" by the chairs "Technology of organic and petrochemical synthesis" (hereinafter the TOPS) and "Chemical technology of oil and gas processing" (hereinafter the CTOGP) and leads to the award of a master's degree. The programme directory is carried by the Professor of the CTOGP chair N. N. Tomina.

A site-visit was carried out within external assessment of the educational programme during the period from 12.04.2021 to 13.04.2021 by the following AKKORK experts:

- M. Iu. Solov'ev, with a visit to the educational organisation;
- P. D. Drashar and M. V. Bermeshev via video conference.

Strengths of the programme

1. The educational organisation has a high publication activity, including the participation of the academic staff involved in the programme. The Web of Science database publishes an average of over 100 articles annually, including in the most respected journals in the technology field. The research results carried out as part of Russian and international scientific cooperation are published.

2. The educational programmes contain all the chemical disciplines necessary for their full-fledged capture.

3. The academic and administrative and managerial staff demonstrate a high concernment in achieving the best quality of the education and does all necessary for this.

4. Students demonstrate a high level of training in certain chemical and technological disciplines, as well as a high level of learning goal-setting and practice-orientedness. The students understand clearly the fundamental differences of this master's programme from the previously mastered bachelor's programme in terms of the formation level of the individual competencies and the competence-based structure of the training in general.

5. A high level of provision of the students with the educational and scientific literature, search engines and periodical scientific publications has been achieved.

6. A high level of psychological comfort in the teaching and student bodies has been achieved.

Weaknesses of the programme

1. Despite good knowledge of chemical disciplines, many students are not able to use it outside of their professional activities, including explanation of the observed or described phenomena, which manifested in the inability to completely fulfill the task in the course of the competencies direct assessment.

2. The students poorly acquire information presented in an uncommon or unusual form, which manifested in the inability to understand a number of tasks proposed in the course of the direct assessment of competencies.

3. The university uses credits (points of credit) that are simply converted from contact hours, rather than as a real indicator of workload (ECTS credits), which allows students to have a bearing on accumulation of learning experience to be transferred as part of the academic mobility.

4. The educational programmes are not sufficiently provided with the equipment necessary for practical training, although during the visit to the educational organisation it was found that the organisation possesses the necessary equipment, but its accessibility is limited and different for students and teachers of different educational programmes.

Main recommendations

1. The university is recommended to constantly improve and expand research and educational equipment used in the educational programmes implementation, as well as to develop approaches to the co-use of equipment by several structural units of the educational organisation.

2. The university administration is recommended to contribute to the continuous professional development and enhancement of the academic staff professional skills, to provide support for young teachers and post-graduate students.

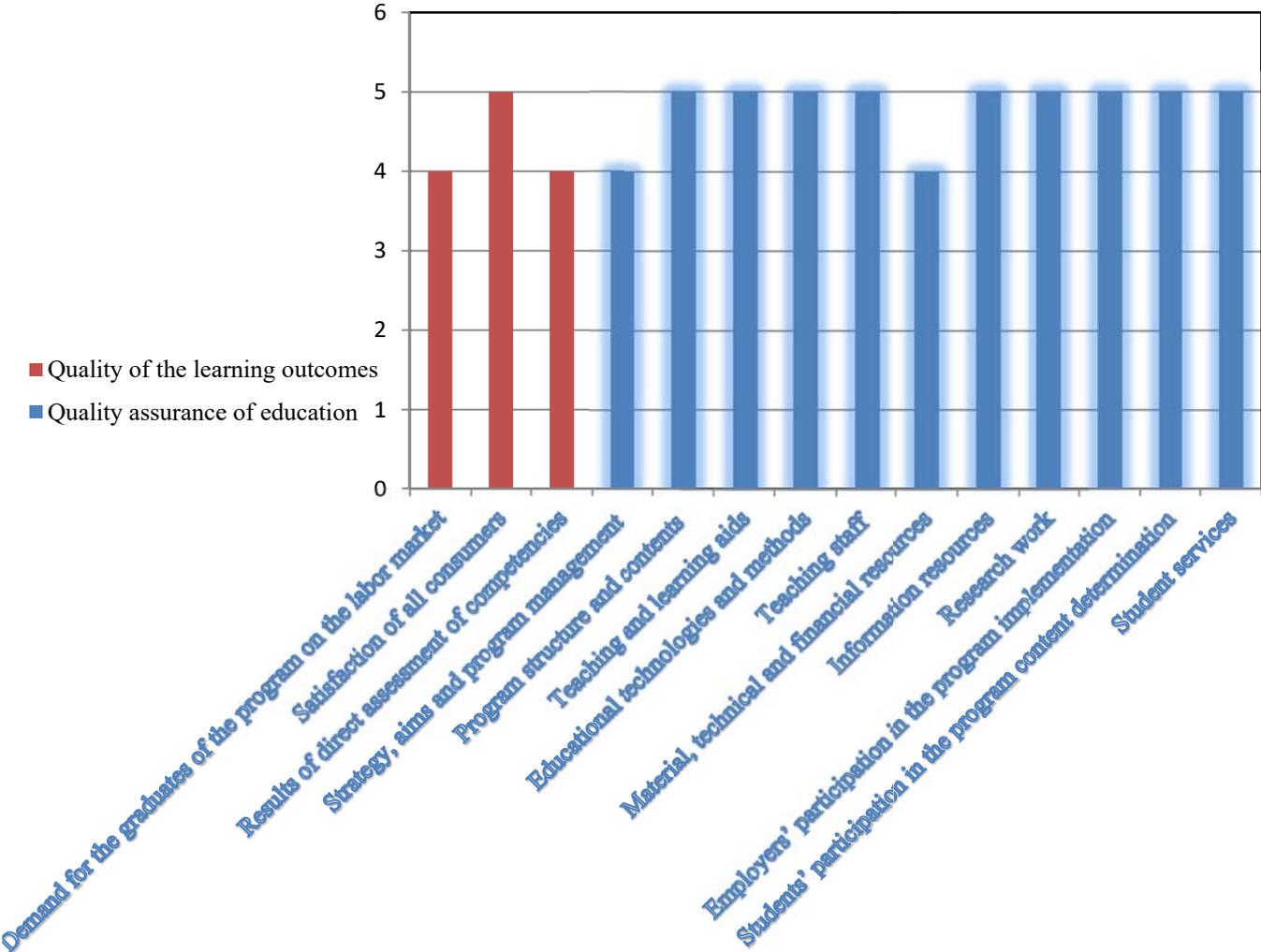
3. It is advisable to expand foreign and external domestic contacts of teachers and students.

4. The work system with the employers needs an additional impulse in terms of ensuring the unofficial participation of their representatives in the development of educational programmes, organisation of internships, equipping of specialised laboratories, recommendations on FQWs (Final Qualification Work) topics, carrying out of master classes and developing specified graduate's competencies.

Assessment profile of the learning outcomes and education quality assurance

| No. | Criterion | Assessment |
|----------------------|--|------------------|
| <i>I</i> | <i>Quality of the learning outcomes</i> | |
| | 1. Demand for the graduates of the program on the labor market | <i>good</i> |
| | 2. Satisfaction of all consumers | <i>excellent</i> |
| | 3. Results of direct assessment of competencies | <i>good</i> |
| <i>II</i> | <i>Quality assurance of education</i> | |
| | 1. Strategy, aims and program management | <i>good</i> |
| | 2. Program structure and contents | <i>excellent</i> |
| | 3. Teaching and learning aids | <i>excellent</i> |
| | 4. Educational technologies and methods | <i>excellent</i> |
| | 5. Teaching staff | <i>excellent</i> |
| | 6. Material, technical and financial resources | <i>good</i> |
| | 7. Information resources | <i>excellent</i> |
| | 8. Research work | <i>excellent</i> |
| | 9. Employers' participation in the program implementation | <i>excellent</i> |
| | 10. Students' participation in the program content determination | <i>excellent</i> |
| 11. Student services | <i>excellent</i> | |

Assessment profile of the learning outcomes and education quality assurance



QUALITY OF THE LEARNING OUTCOMES

1. Demand for the graduates of the program on the federal and regional labor markets

Criterion assessment: good

According to the data of the medium-term forecast of the staffing requirements of the Samara region economy, a ramp-up in the field of mining and chemical industry is arising by 2021 and until 2024 (<https://www.cposo.ru/srednesrochnyj-prognoz-kadrovykh-potrebnostej>). Despite the economic diversification tendency of the redistribution of employment to the service industry, most of the economically active population of the Samara region (22.8%) are employed in manufacturing enterprises. The largest investment projects in the Samara region relate mainly to the chemical industry (JSC Kuibyshev Refinery, JSC Syzran Refinery, OJSC Novokuibyshevsk Refinery, JSC Samaraneftgaz, PJSC KuibyshevAzot, JSC Tarkett). The study of the staffing requirements in the labour markets of the educational districts and region shows that the annual forecasting demand (advanced number of specialists) by 2021 and until 2024 at oil refineries and petrochemical plants is increasing.

The graduates of the field of Chemical technology are in demand at chemical enterprises of the region, including JSC Novokuibyshevsk Petrochemical Company, PJSC Novokuibyshevsk Refinery, LLC Novokuibyshevsk Oils and Additives Plant, Novokuibyshevsk, PJSC Kuibyshev Refinery, TsSKB-Progress, Samara, JSC Syzran Refinery, Syzran, PJSC KuibyshevAzot, Togliatti, PJSC SIBUR Holding, Togliatti, as well as in Design and Research Institutes (JSC Giprovostokneft, PJSC Samaraneftkhimproekt, LLC Samara Research and Design Institute of Oil Production, PJSC Middle-Volga Research Institute of Oil Refining, Novokuibyshevsk, and other).

Analysis of information indicators submitted by the higher education institution

- *The percentage of students combining study at a higher education institution with work in their degree field – more than 90%.*
- *The percentage of graduates who found a job in their field of study within one year graduation – 93,3%.*
- *The percentage of graduates employed at the request of enterprises – 13,9%.*
- *The percentage of students studying at the request of employers, e.g., on the basis of tripartite (target) contracts – 8,5 %.*
- *The percentage of graduates working in their field of study in the region – 93,3%.*
- *The percentage of graduates working in their field of study outside the region – 0%.*
- *Number of complaints on graduates – 0.*
- *Number of positive feedbacks on graduates from organisations - 2.*
- *The percentage of graduates of the HEI in the program in relation to the percentage of graduates of all other universities in the region in the program – 79%.*

According to the results of a self-evaluation conducted by the educational organisation, the data on graduates' distribution are presented. The data provided by the educational organization were confirmed through the examination of the relevant documents and interviews.

2. *Satisfaction of consumers with learning outcomes*

Criterion assessment: excellent

The percentage of employers who believe that the competencies of graduates of the programme:

- are substantially compliant with the requirements for modern professionals in the industry – 100%.
 - mostly meet modern requirements for professionals in this industry with minor deficiencies – 0%.
 - there are few graduates whose competencies meet modern requirements for professionals in this industry – 0%.
 - do not meet the requirements for professionals in this industry – 0%.
- Percentage of graduates who are fully satisfied with the learning outcomes – 46,1%;
Percentage of graduates who are partially satisfied with learning outcomes – 53,9%.

3. *Direct assessment of competencies by reviewers*

Criterion assessment: good

During the site visit, a direct assessment of 4th-year students' competencies was conducted. There were 6 2nd - year students who participated in the direct assessment, which is 75 % of the graduating class.

During the direct assessment of graduates, evaluation tools prepared by experts were used.

To analyze the development of competencies, the experts selected the following ones:

- Assessment of competencies that characterize personal qualities of a person, which are an integral part of his/her professional competence:

CA-1 The potential for abstract reasoning, analysis, synthesis.

- Assessment of competencies aimed at the development, maintenance and improvement of communications:

CA-6 The ability to freely use Russian and foreign languages verbally and in written form as an instrument of business communication.

- Assessment of professional competencies (core competencies), including competencies that reflect the requirements of the regional and/or federal labor market, depending on the main consumers of program graduates:

PCA-2 The willingness to be a team leader in the professional activity field, taking tolerantly social, ethnic, confessional and cultural differences;

PC-3 The ability to use modern equipment and methods, organise conducting of the experiments and tests, process them and study their results.

When implementing the competencies direct assessment procedure, the reviewers held the head-on discussions with the students on the following issues:

1. Based on the background information presented on the slide, suggest a technology for extraction of an alkaloid with a given purity level from a natural material – the leaves of a plant. (The task was proposed and accepted in English, then the explanations and more detailed answers were accepted in Russian).

2. Name the methods you know for studying the properties of oil refining fractions in terms of determining approaches to their further processing.

3. Name the main divisions of a typical petrochemical enterprise, list the categories of personnel involved in them, main job functions and required level of staff education.

Based on the results of a direct assessment of competencies, experts identified a sufficient level of competency formation in the majority of students.

| Level | Sufficient level (students coped with 80 % of the proposed tasks) | Acceptable level (percentage of the solved tasks is from 50 to 79 %) | Low level (percentage of the solved tasks is less than or equal to 49 %) |
|---|--|---|---|
| Share of students | | | |
| <i>Assessment of competencies that characterize personal qualities of a person, which are an integral part of his/her professional competence</i> | | | |
| 60 % | | + | |
| 40 % | + | | |
| | | | |
| <i>Assessment of competencies aimed at the development, maintenance and improvement of communications</i> | | | |
| 60 % | | + | |
| 30 % | + | | |
| 10 % | | | + |
| <i>Assessment of professional competencies (core competencies), including competencies that reflect the requirements of the regional and/or federal labor market, depending on the main consumers of program graduates</i> | | | |
| 60 % | + | | |
| 30 % | | + | |
| 10 % | | | + |

When assessing the quality of education, experts reviewed 4 GQWs, which was 36 % of last year's GQWs in this field.

The experts conclude that the reviewed GQWs meet the requirements stated below as follows:

GRADUATE QUALIFICATION WORKS

| № | Assessment criteria | Reviewers' comments |
|----|---|---------------------|
| 1. | Topics of GQW correspond to the field of training and the current level of development of science, engineering and (or) technology in the program field. | 100% |
| 2. | Tasks and contents of GQWs are aimed at confirmation of formation of competencies of the graduate. | 100% |
| 3. | Degree of use of the materials collected or received during the pre-degree internship and course projects in the implementation of independent research parts of the GQW. | 100% |
| 4. | The topics of GQW are determined by the requests of industry organizations and the tasks of experimental activities, implemented by the teachers of the HEI. | 100% |
| 5. | GQW results find practical application in the industry. | 100% |
| 6. | Degree of use of the research results of the Chair's, Faculty's and third-party research and production and / or research organizations in the implementation of independent research parts of the GQW. | 100% |

Reviewers' recommendations and conclusions

Conclusions

1. The demand for the programme graduates in the labour market of the region in all skills profiles of the field of study is confirmed by high employment rates.

2. There is a high level of satisfaction with the educational outcomes of students, graduates and employers. Self-evaluation data were fully confirmed during the visit to the educational organisation, including as part of the interviewing with all the parties concerned.

3. The direct assessment of competencies showed a satisfactory level of the competencies formedness. On one hand, there is a high level of knowledge of the educational programme disciplines. On the other hand, there is a low level of ability to create effective communication in a foreign language, a weak level of readiness to understand information materials presented in an unusual format, and a low level of readiness to apply existing knowledge to broader problematic areas, including using knowledge in other natural sciences. All surveyed students have a detailed understanding of the principles of petrochemical production organisation.

Recommendations

1. Within the framework of the educational programmes of this field of study, it is recommended to consider the possibility of development and practical evaluation of new interdisciplinary courses involving implementation of tasks requiring students to more comprehensive application of knowledge in chemistry and other sciences. At the same time, it is necessary to focus on formation of functional, reading and digital competence,

allowing a specialist to solve a wide range of tasks that lie beyond traditional university courses.

2. It is necessary to consider the possibility of students training improvement for foreign language professional communication. It is recommended to consider arranging of an English-language communication forum for the students of the assessed programme, for example, in the form of a student association for improving functional lexis proficiency in a foreign language.

3. For the further programme development and education quality improvement, it would be advisable to develop and implement a system that ensures regular independent assessment of graduates' qualifications, as an additional tool confirming the quality of graduates' training.

Based on the results of the questionnaire survey of the programme students, the educational organization provided data that were reviewed by the experts during the on-site visit and videoconferencing. The data provided by the educational organization were fully approved by the experts.

QUALITY ASSURANCE OF EDUCATION

1. Strategy, aims and program management

Criterion assessment: good

Strengths

1. The educational programme strategy represents system of documents subjected to the University Development Programme until 2025, as a comprehensive strategic document of the educational organisation. During the visit, the university administration reported that the draft of this document, mentioned in the self-evaluation report was adopted at a meeting of the University Academic Council.

2. At the university and at the management level of the educational programme, the current system of the education key quality indicators continuous monitoring and approaches to its internal and independent assessment has been adopted and accepted by all the parties concerned; the outside experts are involved and there are regular procedures for receiving feedback from employers, students and graduates.

3. The educational programme (including distribution of the admission quotas among skills profiles) is based on the request of the regional labour market, and the effectiveness of its recognition is confirmed by graduates' demand.

4. The university has developed a management system for the educational programme, which is applicable in parallel and do not contravene the traditional faculty and chair university management model, which was confirmed during the interviews with the educational programme head and the academic teaching staff.

5. There is a high level of cooperation and shared understanding with the industrial partners, provided by the activities of both the academic teaching staff and the Department for Cooperation with Industrial Partners – the university structural unit.

6. Industrial chair “Oil Refining Technology at OJSC Middle-Volga Research Institute of Oil Refining” is available within the Chemical-Engineering Faculty.

Recommendations

1. Within the framework of the further programme development, it is recommended to ensure conducting the procedures for the professional and public accreditation by Russian and/or international agencies on a regular basis.

2. The awareness of teachers and students about the tasks and essential directions for the programme development should be constantly increased. This is required for the maximum participation of the teaching staff in updating the content, educational technologies used, and the educational environment as a whole. It is recommended to hold regular (for example, annual) methodological seminars and/or project conferences with the participation of the university administration representatives, programme heads, teachers and students, aimed at updating the tasks and objectives, as well as at short-term planning. Perhaps it is more expedient to hold such events for a cluster of related educational programmes (Integrated group of training areas 04.00.00).

Additional information

The interviews that were conducted with the employers during the visit demonstrated a high level of their cooperation with the university.

During the visit, the reviewers interviewed students and teachers and obtained data that allow the experts to conclude that they have a high level of the programme's strategic objectives acceptance.

In the course of the self-evaluation, the educational organisation provided data on the teachers' contentment with the personnel policy and current incentive programme. In the course of the interviewing conducted with the teachers taking part in the programme implementation, the self-evaluation data are generally confirmed. At the same time, in some teachers' opinion, the university administration should take into account the interests of the teachers themselves in determining the directions for the academic teaching staff encouragement, for example, in terms of organising continuing professional development.

Based on the results of the interviews, experts conclude that there are necessary conditions for the implementation of the educational programmes in accordance with the objectives to be achieved.

2. Programme structure and contents

Criterion assessment: excellent

Strengths

1. Competence-based curriculum is modern and fully meet the requirements of the Federal State Educational Standards of Higher Education and the relevant tasks of the educational system.
2. The educational programme is coordinated with the employers.
3. There is a very high proportion of FQWs carried out on topics proposed by enterprises.
4. The programmes are being updated since 2021 in accordance with the occupational standards.

Recommendations

1. It is necessary to continue activities on aiming the educational programme to establish competencies provided by the educational programme. An analysis of the curriculum shows, and a direct assessment of the competencies confirms that the content and structure of the educational programme remain knowledge-oriented for the most part, and the existing classes formats are traditional and insufficiently form the required level of functional literacy among the students. It is recommended to continue development of the project formats for working with the students, as well as to consider the development and practical evaluation of inclusive, integrated disciplines that enhance the metadisciplinary, competence-based essence of the educational programme.

2. It is advisable to increase the number of master classes held annually by practitioners. This point of view is also supported by the employed graduates who took part in the interviews. This type of activity will help students to better understand the

specificity of the educational programme and to improve the practice-orientedness of their education.

3. It would make sense to organise a special discussion between the academic staff and the employers and determine why the proportion of FQWs that have found practical application in enterprises and organisations, including small and medium-scale enterprises, is zero, despite a very high number of the defended FQWs on the topics proposed by the employers. A possible reason for this may lie in undertaking of a formal approval of FQWs topics with the relevant organisations.

4. According to the self-evaluation data, students with different initial training levels use the tasks designed for different training levels and individual consultations to master the programme. It is recommended to consider the possibility of developing and organising a periodic training level monitoring and associated variable-based adjustment programme.

5. It is recommended to consider setting a maximum limit for the amount of a study load per week. The absence of this limit can reduce the proportion of a regulated solitary work, which is a fundamentally important type of students' educational activity.

Additional information

During the visit, the experts held meetings with the students of the educational programme. One of the issues discussed is the compliance of the structure and content of the programme with the expectations of the ultimate consumers of the programmes – students. Based on the results of the meeting, the experts conclude that the mechanism of influence on the structure and content of the educational programme exists and is known to the students.

3. *Teaching and learning aids*

Criterion assessment: excellent

Strengths

1. A system that regulates and ensures the quality of the educational and learning materials used is developed and currently applied in the university.

2. The educational and learning materials for the individual clusters are highly practice-oriented.

3. A high level of the educational programme provision with the reference materials, databases, as well as other educational, scientific and methodological materials has been achieved.

Recommendations

It is recommended to continue working to ensure the educational programme with the educational and learning materials within activities to update the structure and content of the educational programmes (see criterion 2 of the block “Education Quality Assurance”).

4. Educational technologies and methods

Criterion assessment: excellent

Strengths

1. Sufficient provision of the programme with the electronic informational resources leads to the introduction of modern technologies for working with information into the educational process.

2. The format of a typical laboratory class, required for the formation and development of the professional procedure skills, is preserved in the programme, which ensures a high level of training.

3. The subdivisions implementing the programme have access to all the necessary environmental solutions for initiating e-learning and distance learning technologies.

4. Online platforms and e-learning tools are used in the implementation of 100% of courses of the academic disciplines.

Recommendations

It is recommended to continue expanding the range of the applied technologies and methods of the educational activities. It is advisable to design and arrange continuing professional development of the academic teaching staff, including in terms of modern technologies application for the educational activities specific for the educational programmes in the field of chemical engineering.

5. Teaching staff

Criterion assessment: excellent

Strengths

1. The academic teaching staff possesses the required proficiency level and rate of the academic degrees for the implementation of conventional educational programmes as part of this educational field.

2. An incentive financial and non-financial system has been constituted and is currently applied in the university, including in relation to the teaching staff involved in the programme implementation.

3. The university and subdivisions involved in the implementation of the programme determine the personnel policy associated with engaging graduates of these and related programmes to the educational work and, thus, replenish the staffing needs on their own manpower.

4. The candidates pool is numerous and there has been a noticeable expansion.

5. Requirements for the qualifications of the teaching staff are described, clear and publicly available. The necessary regulations are regularly updated.

6. About a quarter of the teachers involved in the programme implementation combine work in the educational organisation with professional practice in their specialty, which ensures a high level of practice-orientedness.

7. More than half of the teachers involved in the programmes implementation takes part in the scientific/scientific-methodological and creative activities.

Recommendations

1. It is recommended to organise and further systematically plan professional development of the programme academic staff.

2. It is recommended to consider the feasibility of recruitment of the professors from other universities/regions/countries. At present, the overwhelming majority of the programmes teachers consists of graduates of this university, thereby reconstituting the academic teaching staff. In addition, scientists and teachers from foreign universities are not involved in the programmes implementation. It is advisable to upgrade the educational practices, including by recruiting teachers who have different experience in the educational process organisation.

6. Material, technical and financial resources of the programme

Criterion assessment: good

Strengths

1. The educational programme are provided with the necessary material, technical and financial resources.

2. The classroom fund ensures the availability of information necessary for the organisation of the educational process.

3. The programme possess more than 90 equipped laboratories, which allows to provide the necessary level of practice-orientedness and practical training of graduates.

4. The university has the necessary equipment to organise contemporary educational process.

5. There are conveniences for education of disabled people.

6. All the university departments are financial responsible.

7. To equip the university departments, the R&D (research and development) funds are actively used.

Recommendations

1. It is advisable to define procedures in terms of which scientific equipment of the university, used by some programmes and being in their area of responsibility, can be used by other related programmes and departments. As follows from the self-evaluation report, the material resources of the educational programme and the material resources of the university are partly equated, thus it seems that the programme is provided with equipment, but in real terms does not have access to it, or this access is strictly limited, which is confirmed by the interview data. As a result, the equipment owned by the university is not necessarily used within the framework of a specific educational programme.

2. A high level of satisfaction of the social partners (employers) with the education quality does not fully correlate with their concerns about the difficulties in

admitting students to equipment during their practical trainings due to the regulatory impediments. The formalistic nature of a number of practical trainings is also evidenced by the results of the students interviewing. It is advisable to negotiate with long-standing partners to attract their resources for designing of specialised equipped laboratories provided with expendable materials to enhance practical training of the students.

7. Information resources

Criterion assessment: excellent

Strengths

1. When implementing the educational programme, a unified electronic information and educational environment of the university is used.
2. Numerous electronic educational, scientific and methodological resources, as well as search engines and databases are available for use.
3. The universal electronic personal account was designed, providing a single sign-on and connection with services.
4. Information sharing through the personal account about the current vacancies was organised.

Recommendations

Establishing of a remote access to all the services accessible from the university computers is of considerable interest, especially in the context of a self-isolation necessity.

8. Research and development

Criterion assessment: excellent

Strengths

1. The level of the scientific research projects performed by the teachers, students of the analysed programme is high and competitive.
2. The level of the scientific research projects applying results in the educational process is significant.
3. The proportion of the students that are constantly engaged in the scientific project groups is substantial and is more than 50%.
4. The proportion of the programme students receiving additional scholarships for the achievements in the field of research activities is significant.

Recommendations

1. The university (faculty) administration is recommended to provide assistance in stimulating the participation of the teachers and students in Russian and foreign scientific conferences, which is necessary at a fixed level of the scientific potential.
2. It is recommended to continue to stimulate the master's students to take part in obtaining scientific grants.

9. Employer participation in the programme implementation

Criterion assessment: excellent

Strengths

1. The educational programme is approved by the employers.
2. The representatives of the employers participate in the work of State Examination Boards, as well as in other collective bodies.
3. Employers make suggestions on the FQWs topics.
4. Most employers provide regular practice bases.

Recommendations

It is advisable to involve employers in the development of the specific competencies of graduates. Especially, it is necessary to focus on the competencies related to the scientific and research activities and practice orientation, since the works prepared on the topics suggested by the employers are not put into effect.

Additional information

The self-evaluation report of the educational organisation provides information on the results of a survey of the employers for their satisfaction with the quality of the graduates' training. During the visit, the interviews were conducted with the employers' representative. At the same time, the employers noted that all the necessary competencies of the graduates are perfectly formed.

10. Students' participation in the programme content determination

Criterion assessment: excellent

Strengths

1. The required level of the students' participation in the management processes is ensured in the university and as part of the examined educational programme.
2. The process of receiving feedback from students is developed to the necessary extent, which is confirmed by the information obtained during the students interviewing.
3. Feedback from students was repeatedly used to adjust the content of the educational programme, and also led to the replacement of teachers, practice bases and training formats.
4. There is a high level of the students' satisfaction in a wide range of aspects, including in terms of the attitude to the current activities of the university as to "improvement" in the broadest sense of the word.

Recommendations

It is recommended to study in detail the reasons why the students, possessing wide opportunities to influence the structure and content of the educational programme, do not

see that their points of view are taken into account, which is reported during the questionnaire survey, but is not reported during the interview. The procedures for discussing changes introduced as a result of receiving feedback from students are likely to be enhanced.

11. Student services at the program level

Criterion assessment: excellent

Strengths

1. The students estimate highly the quality of a student life, the opportunities provided and state of the social and psychological atmosphere.

2. The students of the examined programmes participate actively in the student self-governance bodies and in the activities of the student communities, as well as receive support from the trade union organisation.

3. The university strategic partner is PJSC Sberbank, which provides the opportunities for students to receive an educational loan.

Recommendations

1. It is recommended to support the student self-governance bodies, student communities and trade union organisation departments both at the university and programme levels, since this can raise the students' awareness about the existing opportunities. This can be done, for example, by regulating financial and non-financial support of the teachers participating in the activities of the student communities and other student organisations. It is probably advisable to also enhance interaction between the master's students studying on the related programmes.

2. It is advisable to consider the possibility of providing discounts on tuition fees to the students who combine their study with a career in an educational organisation, although this mechanism is currently not in demand. This measure will expand the field of opportunities for the programme potential students.

Curriculum Vitae of Experts

Name: Pavel Drasar

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|------------------------|--|
| Employer, position | Vice President of the ECTN, Lecturer and Scientific Associate at the University of Chemistry and Technology (Prague, Czech Republic) |
| Academic degree, title | Doctor, Professor |
| Honors | Scientific Secretary of the Czech Association of Scientific and Technical Societies |
| Education | Professor Drasar is the author of 38 patents in various fields of chemistry, as well as the author of 16 books and over 250 scientific publications. |
| Research interests | Chemistry of natural compounds. Chirality in super-assembly. |

Name: Michail Solovev

| | |
|---|--|
| Employer, position | FSBEI HE "Iaroslavl State Pedagogical University named after K. D. Ushinskii", Vice-Rector for Academic Affairs |
| Academic degree, title | Candidate of Chemical Sciences |
| Honors | Absent |
| Education | Higher education ("Iaroslavl State Pedagogical University named after K. D. Ushinskii"), Teacher of Chemistry |
| Research interests | Author of over 50 publications on organic synthesis, pedagogy, education management. Co-creator of 2 patents of the Russian Federation in the field of fine organic synthesis. |
| Employer, position | Organic chemistry, medicinal chemistry, chemistry of heterocyclic compounds, education and pedagogical sciences, higher education management. |
| Practical experience in the field of the program under review | Work as Head of the Laboratory of Fine Organic Synthesis, Deputy Director of the Institute for Chemogenomics Problems. |

Name: Maxim Bermeshev

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| Employer, position | Federal State Budgetary Scientific Institution of the Order of the Red Banner of Labour "A. V. Topchiev Institute of Petrochemical Synthesis of the Russian Academy of Sciences (TIPS RAS)", Deputy Director for Science |
| Academic degree, title | Doctor of Chemical Sciences, Assistance Professor |

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| Honors | Absent |
| Education | Higher education, Chemist, specialty – Chemistry. |
| Research interests | Author of over 100 publications and 10 patents, co-creator of 2 teaching editions. |
| Employer, position | Chemistry of organo-silicon compounds, chemistry of saturated hydrocarbons, metathesis, addition polymerisation, membrane materials. |
| Practical experience in the field of the program under review | Work as Head of the Laboratory of Chemistry of Organo-Silicon and Carbocyclic Compounds, lectureship on organic chemistry and metal complex catalysis in “D. Mendeleev University of Chemical Technology of Russia” and “Lomonosov Moscow State University of Fine Chemical Technologies”. |

Name: Oleg Korovin

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| Employer, position | Student, RUDN university |
| Academic degree, title | N/A |
| Honors | N/A |
| Education | 4th year Bachelor's degree student in "Energy and Resource Saving Processes in Chemical Technology, Petrochemistry and Biotechnology". |
| Professional achievements | Participant of international conferences |
| Research interests | Development of energy-efficient technologies |
| Practical experience in the field of the program under review | Development of carbon-neutral energy cycles. Study of new methods of acetylene carbon black production using energy-efficient technologies |