




SUMMARY REPORT

on professional public accreditation of the cluster of educational programmes

«Biotechnology» (19.03.01, 19.04.01),

Delivered by D.I. Mendeleev Russian Chemical-
Technological University



2021

While preparing this Summary Report we used information from the Self-Evaluation Report and the Report on the External Review of the cluster of educational programmes «Biotechnology» (19.03.01, 19.04.01) delivered by D.I. Mendeleev Russian Chemical-Technological University.

The presentation document for the use by the National Accreditation Board.

СОДЕРЖАНИЕ

GENERAL INFORMATION ON THE EDUCATIONAL INSTITUTION ..	4
INFORMATION ON THE STUDY PROGRAMMES UNDERGOING ACCREDITATION	5
ACHIEVEMENTS OF THE EDUCATIONAL PROGRAMME.....	7
EXTERNAL REVIEW PANEL	10
COMPLIANCE OF THE EXTERNAL REVIEW OUTCOMES WITH THE STANDARDS	11
DISTRIBUTION DIGRAM OF THE EXTERNAL REVIEW OUTCOMES	17
CONCLUSION OF THE EXTERNAL REVIEW PANEL.....	18

GENERAL INFORMATION ON THE EDUCATIONAL INSTITUTION

Full name of the educational institution	<i>Federal State Budgetary Educational Institution of Higher Education « D.I. Mendeleev Russian Chemical-Technological University»</i>
Founder	<i>Ministry of Science and Higher Education of the Russian Federation</i>
Year of foundation	<i>1898 — Moscow Industrial College 1918 — Moscow Chemical Technical School 1922 — Moscow Chemical-Technological Institute 1992 — D.I. Mendeleev Russian Chemical-Technological University</i>
Address	<i>9, Miusskaya Squ. Moscow, 125047,</i>
Rector	<i>Alexander Mazhuga, Doctor of Chemistry, Professor</i>
License	<i>Series 90Л01 №8964 reg. № 1930 of 08.02.2016 permanent</i>
State accreditation	<i>Certificate of State Accreditation Series 90A01 № 3313, reg. №3153 from 19.06.2019 until 19.06.2025</i>
State accreditation	<i>6976 5495 Full time 6438 Part time 63 Off site 475</i>

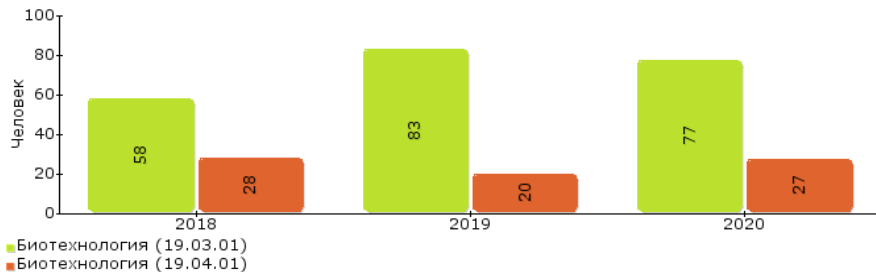
INFORMATION ON THE STUDY PROGRAMMES UNDERGOING ACCREDITATION

Educational programmes	<i>«Biotechnology» (19.03.01), «Biotechnology» (19.04.01)</i>
Level of training / Standard period of training	<i>Bachelor degree programme / 4 years Master degree programme / 2 years</i>
Structural subdivision (Head)	<i>Faculty of Biotechnology and Industrial Ecology (Natalia Kruchinina, Doctor of Technical Sciences, Professor)</i>
Major Departments (Heads)	<i>Department of Biotechnology (Victor Panfilov, Doctor of Technical Sciences, Professor)</i>
Date of site visit	<i>April, 20-22, 2021</i>
Persons responsible for accreditation	<i>Dmitry Lopatkin, Candidate of Economics, Head of the Department for Quality, Licensing and Accreditation Alexander Kuznetsov, Candidate of Technical Sciences, Associate Professor , Deputy Head of the Department of Biotechnology</i>

SAMPLING RESULTS OF THE NATIONAL AGGREGATED RANKING BY SUBJECT

HEI																		
19.00.00 Industrial Ecology and Biotechnology 19.03.01 «Biotechnology» 19.04.01 «Biotechnology»	1 League																	
National Aggregated Ranking of HEIs	1 League																	
Total number of Integrated Groups of Training Areas (IGTA) delivered in the HEI	13																	
Distribution of IGTA according to the Leagues																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">League</th> <th style="width: 50%;">Number of IGTA</th> </tr> </thead> <tbody> <tr> <td>Premier League</td> <td style="text-align: center;">4</td> </tr> <tr> <td>League 1</td> <td style="text-align: center;">6</td> </tr> <tr> <td>League 2</td> <td style="text-align: center;">2</td> </tr> <tr> <td>League 3</td> <td style="text-align: center;">0</td> </tr> <tr> <td>League 4</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	League	Number of IGTA	Premier League	4	League 1	6	League 2	2	League 3	0	League 4	1	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">■ Премиер-лига</td> </tr> <tr> <td style="text-align: center;">■ 1 лига</td> </tr> <tr> <td style="text-align: center;">■ 2 лига</td> </tr> <tr> <td style="text-align: center;">■ 3 лига</td> </tr> <tr> <td style="text-align: center;">■ 4 лига</td> </tr> </table>	■ Премиер-лига	■ 1 лига	■ 2 лига	■ 3 лига	■ 4 лига
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Russian Federation																		
Number of HEIs implementing similar IGTA in the RF	130																	
Distribution of HEIs by the League within the IGTA																		
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NUMBER OF APPLICANTS ENTERING THE EDUCATIONAL PROGRAMMES



ACHIEVEMENTS OF THE EDUCATIONAL PROGRAMME

Quality of implementing the educational programmes

The quality of the implementation of the educational programmes is ensured by timely revision of the content of the programmes in order to comply with the requirements of the Federal State Educational Standard and in order to take into account the latest scientific achievements and to update information and methodological support. The teachers of the department, as members of the FEMA (Federal Education and Methodological Association) in the field of training 19.03.01 and 19.04.01 "Biotechnology" of the integrated groups 19.03.00 and 19.04.00 "Industrial ecology and biotechnology" (V.I. Panfilov - member of the Presidium of the FEMA on the USGS 19.00.00, A.E. Kuznetsov is a member of the FUMO for IGTA 19.00.00), are part of the working group on the development of the Federal State Educational Standard in the field of training "Biotechnology", which allows for timely and qualified development of requirements for the training of graduates in Biotechnology not only at the university and the department levels, but also at all departments of a similar profile nationwide. An important component of the quality of training is also the composition of students – the average score of applicants for admission to the University for the specialty "Biotechnology" has been one of the highest in the University for a long time, and among applicants from other universities of the country in the direction of training 19.03.01 "Biotechnology" (more than 60 universities), is the highest.

Provision of up-to-date education

A number of leading employees of the institutions of the Russian Academy of Sciences (within the framework of the research and educational center "Genomics, Molecular Biotechnology and Medicine"), SIC "Kurchatov Institute" - GosNIIgenetics, FIC "Fundamentals of Biotechnology" of the Russian Academy of Sciences, as well as other

institutions of the Russian Academy of Sciences and federal centers have been involved in updating the content of the basic educational programmes.

Teaching staff

The structure of the teaching staff makes it easy to adapt to new professional requirements. The percentage of the Department staff having academic degrees and titles as of 01.04.2021 is 100%. The teachers of the Department have the opportunity to constantly improve their qualifications, to contact colleagues from leading universities in Russia and abroad. The teachers work on modern laboratory and research equipment, have the opportunity to use the information resources of leading scientific publications.

Personnel training is conducted through postgraduate programmes.

Independent assessment of student learning outcomes

The use of procedures for independent assessment of learning outcomes is confirmed by prizes and high places won awarded by external experts at annual Russian, regional and international conferences, forums, competitions and Olympiads: the student Olympiad "I am a professional", subject Olympiads, Russian and international conferences. The University regularly participates in the project "Federal Internet Exam in the field of professional education".

Learning Resources

The laboratories are equipped with modern research tools for carrying out a wide range of fundamental and applied research in extensive areas of natural science and technical orientation. Educational technologies focused on the individual needs of students are used; they are aimed at the formation of professional and personal competencies necessary for the formation of a graduate as a full-fledged and unique specialist. The resources of the Institute of Molecular Genetics of the Russian Academy of Sciences (lecture rooms, lecturers when teaching sections of the courses "Molecular Genetics" and "Protein Engineering") are also involved in the training of masters students .

Research

The participation of students in annual conferences of various levels, for example: the International Congress of Young Scientists in Chemistry and Chemical Technology, the International Forum "Biotechnology: state and Prospects of Development" is aimed at the development of the research culture of students. The teachers of the Department of Biotechnology actively participate in research activities, in the implementation of grants, projects, implementing their scientific and creative potential.

Academic mobility of students

D.I. Mendeleev Russian Chemical-Technological University has more than 120 contracts with universities and organizations from 35 foreign countries. The University has an International Educational and Scientific Center for the Transfer of Pharmaceutical and Bio-technologies, which organizes and practically implements the processes of technology transfer in the field of pharmaceuticals and biotechnologies within the framework of international cooperation; conducting research in the field of pharmaceuticals and biotechnologies; organizing international and intra-industry exchange of information on scientific achievements in the field of pharmaceutical and biotechnologies; training of students in special disciplines corresponding to the profile of the center's activities. Every year 1-3 students of the Department of Biotechnology are sent by their direct supervisors within the framework of final qualification works and master's theses to foreign scientific internships to conduct part of research.

Employability of graduates

The main employers of graduates in the areas of training 19.03.01 and 19.04.01 are research institutions, enterprises and companies of the manufacturing sector of the economy, engineering and technological support of production and research in the fields of medical and pharmaceutical biotechnology, molecular and cellular biotechnology, bionanotechnology, bioinformatics and other high-tech developments, as well as agricultural and forestry biotechnology, environmental biotechnology, food biotechnology, technical, industrial biotechnology and bioenergy.

International projects

The participation of the Department of Biotechnology in the international project under the Tempus programme of the European Commission "Reform of Higher Education in Biotechnology: development and improvement of standards and curricula for the preparation of bachelors and masters" served as a great impetus in improving the quality of training of graduates, in which the RCTU acted as the coordinator of the entire project.

EXTERNAL REVIEW PANEL



Maxim Rebezov (Moscow)

Review Chair, Russian expert

Doctor of Agricultural Sciences, Professor, Chief Researcher of the V.M. Gorbатов Federal Research Center for Food Systems of the Russian Academy of Sciences, previously Head of the Department of Applied Biotechnology of the South Ural State University (National Research University), expert of Rosstandart

Nominated by the Guild of Experts in Higher Education



Dmitry Vinokhodov (Saint Petersburg)

Deputy Review Chair, Russian expert

Doctor of Biological Sciences, Associate Professor, Head of the Department of Molecular Biotechnology, Head of the Educational and Analytical Department, St. Petersburg State Institute of Technology (Technical University), member of the Guild of Experts in Higher Education

Nominated by the Guild of Experts in Higher Education



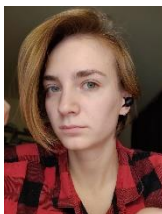
Alexey Topunov (Moscow)

Panel Member, representative of employers

Doctor of Biological Sciences, Head of the Laboratory of Biochemistry of Nitrogen Fixation and Nitrogen Metabolism of the Federal Research Center "Fundamentals of Biotechnology" of the Russian Academy of Sciences

доктор биологических наук, заведующий лабораторией биохимии

Nominated by the Federal Research Center "Fundamentals of Biotechnology" of the Russian Academy of Sciences



Asiya Saydasheva (Moscow)

Panel Member, student representative

4th year student of the A.P. Nelyubin Institute of Pharmacy of the I.M. Sechenov First Moscow State Medical University of the Ministry of Health of the Russian Federation

Nominated by номинирована the I.M. Sechenov First Moscow State Medical University of the Ministry of Health of the Russian Federation

COMPLIANCE OF THE EXTERNAL REVIEW OUTCOMES WITH THE STANDARDS

STANDARD 1. Policy (goals, development strategy) and quality assurance procedures of the educational programme

Compliance with the standard: **full compliance**

Good practice:

The administration of the D.I. Mendeleev Russian Chemical-Technological University sets rather ambitious goals formulated in the main strategic documents, and actively attracts third-party funds for the development of the University.

Development of integrated educational programs together with the business community.

Areas for improvement:

It is recommended that the internal quality control mechanisms should be brought in line with the criteria of international university rankings.

It is recommended that in order to formalize, systematize and make regular work on correcting strategic issues of university development, should be improved. The student community, graduates and employers, should be involved, by organizing a quality council.

STANDARD 2. Design and approval of programmes

Compliance with the standard: **full compliance**

Good practice:

Employers take part in the formation and improvement of educational programmes, as well as in supervising final qualifying works.

The educational programmes include modern methods of digital design.

When developing educational programmes, the requests of the professional community and professional standards are taken into account.

Methodological materials, as well as assessment funds, are constantly being adjusted and improved.

Areas for improvement:

It is recommended to provide an assessment of the progress in educational programmes (programme – proposals – consideration of proposals – rejection of proposals or amendments to existing programmes), as well as evaluation of the effectiveness of programme development.

Students, graduates and employers should be more actively informed about the possibilities of influencing the formation of educational programmes.

It is recommended to consider the possibility of developing unique educational programmes with the participation of employers to ensure the leadership of the University in certain areas in the educational area of Russia.

STANDARD 3. Student-centered learning and assessment

Compliance with the standard: **full compliance**

Good practice:

Extensive use of individual student learning paths, as well as exceptionally wide opportunities for students to choose topics for research work.

Involvement of students in research, starting from the 2nd year.

The active functioning of the student council, the students' trade union committee.

Monitoring of students' academic performance and their achievements, combined with a differentiated system of incentives.

Active participation of students in Olympiads, national and international conferences, including Internet Olympiads. Participation of graduates in the Federal Internet Exam for Bachelors.

Areas for improvement:

It is recommended that the participation of students in all forms of international activity should be given more support.

It is recommended to consider the possibility of introducing disciplines into educational programmes (possibly as electives), where students would gain skills in compiling scientific and technical documentation, accounting documents, patent and grant applications, as well as business and scientific communication skills and public speaking.

It is recommended that regular meetings of students with leading scientists and managers of industrial enterprises of a biotechnological profile be organized.

STANDARD 4. Student admission, support of academic achievements and graduation

Compliance with the standard: **substantial compliance**

Good practice:

Availability of special classes and Olympiads for schoolchildren.

Creation of the Mendeleev Technopark.

Conducting open door days for applicants and for future post graduate students.

Uniform distribution of students among the teachers of the graduating department for research work.

Areas for improvement:

The improvement of students' language training could significantly increase their opportunities in international academic mobility programs.

It is necessary to bring to the attention of all students the possibility of obtaining a European Diploma Supplement.

It is recommended that students (especially undergraduates) should be involved in teaching schoolchildren at the Mendeleev Technopark. This would make it possible to single out from them those who have the greatest abilities for teaching, to form a reserve fund of future employees of the D.I. Mendeleev Russian Technical University.

STANDARD 5. Teaching staff

Compliance with the standard: **full compliance**

Good practice:

The quality of knowledge, the qualifications of the teaching staff, the number of teachers, their traditions and timely rotation left a positive impression.

Involvement of leading Russian biotechnologists in the educational process.

The presence of a significant number of young enthusiasts in the teaching environment.

Publication of a relatively large number of scientific papers (co-authored with students) in spite of relatively limited funding.

Availability of internal grants for young scientists.

Informal education, nurturing young people with inclination for research.

Good knowledge of foreign languages, the ability to conduct classes in English.

Areas for improvement:

It is recommended that additional measures should be taken to attract teachers from foreign scientific and educational organizations to conduct certain disciplines using distance learning technologies.

It is recommended to improve the system of internships and advanced training of the teaching staff within the framework of both internal and international mobility.

It would be advisable to introduce regular self-assessment of teachers, which is an important quality assurance tool.

It is recommended to encourage the improvement of knowledge of foreign languages through a system of financial incentives (for example, through a personal coefficient to the salary).

STANDARD 6. Learning resources and student support

Compliance with the standard: **substantial compliance**

Good practice:

Significant improvement of the material and technical resources of the educational process over the past three years.

Creation of a new Engineering Center, International Educational and Research Center for the transfer of pharmaceutical and bio- technologies.

Extensive use of the resources of the leading medical and biological research institutes of Moscow in the educational process.

Active use of Internet technologies in the educational process.

Availability of a system of individual accounting of learning outcomes in combination with a system of differentiated financial incentives for students.

A developed system of additional scholarships.

Formation of a fund of video lectures on the main disciplines.

Full provision with dormitory places.

Areas for improvement:

It is recommended to consider the possibility of using institution funds for the purchase of new equipment, as well as all reagents and consumables necessary for the implementation of the educational process.

It is absolutely necessary to equip all buildings intended for classes with tactile signs with Braille, and recreation areas with drinking water.

It is necessary to use a great potential for the development of interaction with specialized production enterprises for the organization of work placement of students.

Taking into account the trends in the development of molecular biology, it is recommended to expand the block of disciplines related to molecular biological research.

It is recommended to find funds to increase the academic mobility of students.

STANDARD 7. Collection, analysis and use of information for managing the educational institution

Compliance with the standard: **full compliance**

Good practice:

Organization, implementation and widespread use of personal electronic accounts of students and teachers.

Organization of a pool of research topics for the execution of course and final qualifying works, replenished not only by the university staff, but also by external customers.

Areas for improvement:

It is recommended students should be involved in the procedures for analyzing the results of monitoring educational programmes on a regular basis.

STANDARD 8. Public information

Compliance with the standard: **full compliance**

Good practice:

The website of the D.I. Mendeleev Russian Chemical-Technological University is well structured and contains almost all the information necessary for students.

All aspects of the university's life are widely covered in the media and on its own information resources.

The University publishes its own journals: "Advances in Chemistry and Chemical Technology", "Silicate Engineering and Technology", "Bulletin of the D. I. Mendeleev Russian University of Chemical Technology: Humanitarian and Socio-Economic Research", "Historical Bulletin of the D.I. Mendeleev Russian University of Chemical Technology", as well as the newspaper "Mendelevets".

Various social networks are actively involved in the process of informing the public.

Areas for improvement:

It is recommended to improve the mechanisms for collecting, processing and posting objective information on the employment of graduates in each field of training and in each specialty on the university's website.

It is recommended to post on the official website comparative information about the achievements of the implementation of the educational programme against the background of other educational programmes in this organization and other educational organizations.

It is recommended to create full-fledged versions of the official website of the university in several foreign languages.

STANDARD 9. On-going monitoring and periodic assessment of the educational programmes

Compliance with the standard: **full compliance**

Good practice:

Educational programmes are updated annually.

The procedures of periodic evaluation of educational programmes are focused not only on internal users, but also on external evaluations, in particular, on the professional expert community.

Areas for improvement:

It is recommended to expand the participation of employers, graduates and students in periodic surveys in order to improve educational programmes.

It is recommended to expand the participation of industrial enterprises in the revision of educational programmes, as well as in the formation of the topics of final qualification works.

STANDARD 10. Cyclical external quality assurance of the educational programmes

Compliance with the standard: **full compliance**

Good practice:

Conducting regular internal and external evaluations of educational programmes during state accreditation, within the framework of the independent ranking "The Best Educational Programmes of Innovative Russia", self-assessment, internal monitoring procedures and surveys.

Prompt response to criticism, but only if it is objective, which makes it possible to maintain the core of the scientific and methodological school and maintain its high status.

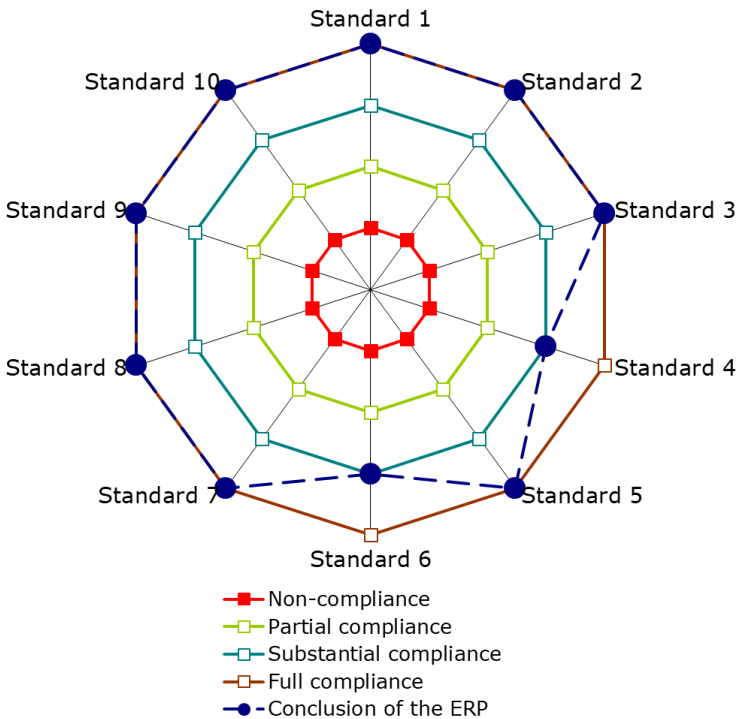
According to the professional community, graduates of the D.I. Mendeleev Russian Technical University, in comparison with graduates of other universities of similar specialties, show a very good command of technical knowledge.

Areas for improvement:

It is recommended to consider the possibility of international accreditation of educational programmes in order to expand the academic mobility of teachers and students.

It would be very useful to discuss the issues of state, professional, public and international accreditation of educational programmes in biotechnology at the next meeting of the Federal Educational and Methodological Association on IGTA 19.00.00 "Industrial ecology and biotechnology".

DISTRIBUTION DIGRAM OF THE EXTERNAL REVIEW OUTCOMES



- Standard 1. Policy (goals, development strategy) and quality assurance procedures of the educational programmes
- Standard 2. Design and approval of programmes
- Standard 3. Student-centered learning, teaching and assessment
- Standard 4. Student admission, support of academic achievements and graduation
- Standard 5. Teaching staff
- Standard 6. Learning resources and student support
- Standard 7. Collection, analysis and use of information for managing the educational institution
- Standard 8. Public information
- Standard 9. On-going monitoring and periodic assessment of the educational programmes
- Standard 10. Cyclical external quality assurance of the educational Programmes

CONCLUSION OF THE EXTERNAL REVIEW PANEL

Based on the self-evaluation report analysis, documents and data submitted the External Review Panel has come to the conclusion that the cluster of educational programmes the cluster of educational programmes «Biotechnology» (19.03.01, 19.04.01) delivered by D.I. Mendeleev Russian Chemical-Technological University **fully comply** with the standards and criteria of public accreditation of the National Centre for Public Accreditation.

The Panel recommends that the National Accreditation Board accredit the cluster of educational programmes the cluster of educational programmes «Biotechnology» (19.03.01, 19.04.01) delivered by D.I. Mendeleev Russian Chemical-Technological University for the period of **6 years**.