




SUMMARY REPORT OF THE EXTERNAL JOINT INTERNATIONAL EVALUATION

of the cluster of educational programmes in

«Chemistry» (020100.62, 020100.68, 020101.65),

delivered by the Federal State Autonomous Educational
Institution of Higher Education «Lobachevsky State
University of Nizhni Novgorod»



2016

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 in "Chemistry" (020100.62, 020100.68, 020101.65) delivered by the Federal State Autonomous Educational Institution of Higher Education «Lobachevsky State University of Nizhni Novgorod».

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

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GENERAL INFORMATION ON EDUCATIONAL INSTITUTION

Full name of the educational institution	<i>Federal State Autonomous Educational Institution of Higher Education «Lobachevsky State University of Nizhni Novgorod»</i>
Founders	<i>Ministry of Education and Science of the Russian Federation</i>
Year of foundation	<i>1916 –City People’s University of Nizhni Novgorod 1918 –State University of Nizhni Novgorod 1932 –State University of 1956 – Lobachevsky State University of Gorky 1990 – Lobachevsky State University of Nizhni Novgorod 2009 – Lobachevsky State University of Nizhni Novgorod (National research University)</i>
Место нахождения	<i>Russia, Nizhni Novgorod, Gagarin avenue, 23.</i>
Ректор	<i>Dr of Physics and Mathematics, professor Chuprunov Evgeny Vladimirovich</i>
Лицензия	<i>Series 90Л01 № 0008005 reg. № 1035 dated from 25 June 201,4 permanent</i>
Государственная аккредитация	<i>State Accreditation Certificate Series 90A01 № 0001137 reg. № 1065 dated from 23 July 2014 valid before 25 June 2018</i>
Number of students	<i>25745 among them: full-time 13892 on-site and off-site 1100 part-time 10753</i>

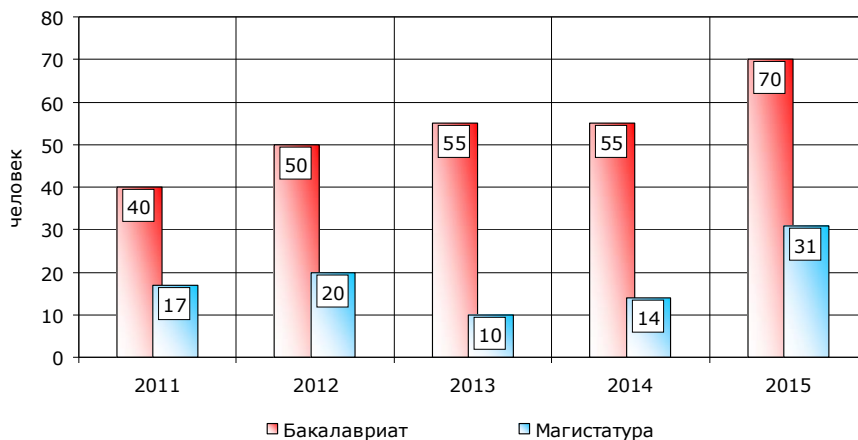
INFORMATION ON THE EDUCATIONAL PROGRAMMES UNDERGOING ACCREDITATION

Educational programmes	<i>«Chemistry» (020100.62) «Chemistry» (020100.68) «Chemistry» (020101.65)</i>
Level of training / Standard period of training	<i>Bachelor's degree programme / 4 years Master's degree programme / 2 years Specialists programme / 5 years</i>
Structural subdivision (head)	<i>The Faculty of Chemistry (Dr. of Chemistry, professor Gushchin Alexey Vladimirovich)</i>
Major departments (heads of major departments)	<i>Department of Organic Chemistry (Dr. of Chemistry, professor Fyodorov A.Y.); Department of Macromolecular Compounds and Colloid Chemistry (Dr. of Chemistry, professor Semchikov Y.D.); Department of Petroleum Chemistry (Dr. of Chemistry, professor Gushchin A.V.); Department of Physical Chemistry (Dr. of Chemistry, professor Markin A. V.); Department of Inorganic Chemistry (Dr. of Chemistry, academician of RAS, Churbanov M.F.); Department of Analytical Chemistry (Dr. of Chemistry, professor Rrylov V.A.); Department of Photochemistry and Spectroscopy (Dr. of Chemistry, professor Zelentsov S.V.)</i>
Date of the site visit	<i>November 10-12, 2015</i>
Person responsible for public accreditation of the educational programme	<i>Doctor of Chemistry, professor Gushchin Alexey Vladimirovich</i>

SAMPLING RESULTS OF THE PROJECT "THE BEST EDUCATIONAL PROGRAMMES OF INNOVATIVE RUSSIA"

Indicators	2015
Cluster of the educational programmes «Chemistry» (020100.62, 020100.68, 020101.65)	
Number of the given programmes in the RF	276
Number of higher educational institutions to offer the given programmes	161
Number of programmes – winners of the project (% from total amount of these programmes offered in the RF)	46 (16,67%)
Nizhni Novgorod region	
Number of the given programmes offered in the region	4
Number of programmes – winners of the project (% from total amount of these programmes offered in the region)	3 (75%)
Number of higher educational institutions and subsidiaries in the region	60
Total number of programmes offered in the region	364
Total number of programmes – winners of the project (% from total amount of these programmes offered in the region)	91 (25%)

REFERENCE DATA ON STUDENT ENROLLEMENT FOR PROGRAMMES



ACHIEVEMENTS OF THE EDUCATIONAL PROGRAMMES

Quality of the delivered educational programmes

High quality of the delivered educational programmes is ensured by effective selection of applicants, it is confirmed by the students' success in competitions and Olympiads, and by the high demand for the graduates in the labour market.

The teachers of the Faculty are highly qualified: 98,5% of the staff are degree and title holders: 38 Doctors of Chemistry, 2 full members of RAS, 4 corresponding members of RAS, 39 associate professors.

Employability of graduates

The graduates of the Faculty of Chemistry are in high demand at the labour market. They are employed at academic and branch research institutions, leading oil and chemistry companies of Russia and Nizhny Novgorod Region, they also work as teachers in HEIs, colleges, schools and other spheres of national economy. Every year 25-30m graduates are enrolled in post graduate programmes of NNSU and other HEIs.

Provision of up-to-date education

Starting with the 3^d and 4th year the students are involved in research work, take part in initiative projects, grants and commissioned projects, write research papers, participate in approbation of research results, present at research conferences, take part in competitions. By the time of Master theses defense 90% of graduates have 1-3 published works.

Research work

Adequate equipment, high qualifications of staff, research and academic activity of under- and postgraduates facilitate the growth of the number and scope of grants and commissioned projects at the Faculty. In 2014 the total volume of work in 44 topics came up 45 ml rubles, which is 11 times as much as in 2006. The number of published works in the leading journals with a high impact factor indexed in Scopus and Web of Science is constantly growing and in 2014 came up to 190, which is one third of all published works in UNN. Among the staff members there are 10 members of editorial offices of Russian and foreign leading research journals. During last two years 20 Candidate and 3 Doctor Dissertations have been defended. In 2014 10 patents were received and 5 monographs were published. Among students there are 4 recipients of the RF President and the RF Government scholarship, 15 recipients of Academician G.A. Rasuvaev scholarship, 15 "Nauchnaya Smena" scholarships and 10 grants UMNIC for youth.

Material and technical resources

In the course of work on the programmes "The National Research University" (2009-2018), and the «The Programme for development of competitiveness of research and educational centres" (2014-2016) the

research laboratories have been re-equipped; the staff members participate in Russian grant competitions; the post graduate programmes have been actively developed; there has been an increase in publishing activity. During the last five years some state-of-the art laboratory equipment has been purchased for the sum of 94 ml rubles. The laboratories have been refurbished and modernized.

Academic mobility of students

The Faculty of Chemistry has been actively prompting the academic mobility of students. The students of the Faculty participate in exchange programmes, national and international conferences and Olympiads.

International projects

In 2014 NNU projects of the Programme «5-100» on establishing laboratories with the participation of leading scientists were implemented.

Research was conducted within the framework of the joint project РФФИ-DFG on the topic H-146-3 in the synthesis of new antimitotic agents - heterocyclic colchicine derivatives (2015). UNN research supervisor - Professor A. Fyodorov, University of Köln supervisor - Professor H. Schmaltz.

The joint Russian- French post graduate programme was opened. The programme makes provision for annual 6 month research visits to France (post graduate student Y. Voinovich, 2014-2015).

With the support of NNU programme «5-100» 29 visits of teachers and students to foreign research centers have been organized for participation in different research events (Austria, Spain, Czech Republic, Germany, Slovak Republic, Ireland, Singapore, Japan, the USA, France, Korea, Serbia, Turkey, Finland).

EXTERNAL REVIEW PANEL



Xuhong Guo (People's Republic of China)

Review Chair, international expert

PhD, Professor, Vice Dean of the School of Chemical Engineering at Eastern Chinese University of Science and Technology, editor of chemical Engineering Research & Design(Elsevier Publishing House), subeditor of Journal of East China University of Science and Technology, expert member of not-for-profit, non-governmental accrediting agency for programmes in applied science, computing, engineering, and engineering technology (ABET), Chinese Engineering Education Accreditation Association (CEEAA) (People's Republic of China), international expert, Review Chair;

A nominee of the Higher Education Evaluation Centre of the Ministry of Education (HEEC)



Svetlana Derkach (Russia)

Deputy Review Chair, Russian Expert

Doctor of Chemical Sciences, Professor, Head of the Department of Chemistry at Murmansk State Technical University,

A nominee of the Guild of Experts in Higher professional education

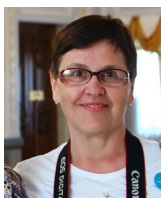


Xinwen Guo, (People's Republic of China)

Panel member, foreign expert

PhD, Professor, Vice Dean of the School of Chemical Engineering at Dalian University of Technology, member of the editorial board of Chinese Journal of Catalysis and ACTA PETROLEI SINICA (Petroleum Processing Section), National prize-winner in scientific and technological advances (People's Republic of China),

A nominee of the Higher Education Evaluation Centre of the Ministry of Education (HEEC)



Irina Kozlova (Russia)

Panel member, representative of professional community,

Head of Science and Technology Department at Federal State Unitary Enterprise V.A. Kargin Polymer Chemistry and Technology Research Institute with a Pilot Production Plant, representative of professional community

A nominee of Federal State Unitary Enterprise V.A. Kargin Polymer Chemistry and Technology Research Institute with a Pilot Production Plant.

Anna Kapralova (Russia)

Panel member, representative of students

4th year Bachelor's degree student, Faculty of International Relations, Economics and Management majoring in International Relations at Nizhni Novgorod State Linguistic University

ominee of Nizhni Novgorod State Linguistic University



COMPLIANCE OF THE EXTERNAL REVIEW OUTCOMES WITH THE NCPA'S STANDARDS

STANDARD 1. POLICY (MISSION, VISION) AND PROCEDURES FOR QUALITY ASSURANCE

Compliance with the standard: **full compliance**

Good practice

The educational programmes have well-grounded goals and objectives aimed at the development of students' skills, generic cultural and professional competencies complied with the requirements of the Documents regulating contents, organization and monitoring of the learning process quality are developed and approved.

The mission of each programme is clearly formulated and is in line with the University's mission, taking account of the development tendencies of the Region.

All stakeholders are involved in the development of the programmes.

Much attention is paid to the independent work of students (preparing presentations, literature surveys, doing individual assignments). First year students receive special attention and support from the teachers and senior students.

Sociological studies are conducted in order to get feedback on the quality of the educational process at the Faculty. The results are published on the website.

Areas for Improvement:

- Representatives from the industry (employers) and students should be involved in working out the strategy for educational programme development and its contents updates on a regular basis.

- Information on the educational programmes should be easily accessible for both national and international partners and prospective students.

STANDARD 2. Approval, monitoring and periodic review of study programmes

Compliance with the standard: **full compliance**

Good practice

A system of periodic internal and external review and monitoring is in place, which facilitates continuous enhancement of the programme.

Curriculum and working programmes are regularly revised in compliance with the goals and objectives of the educational programme

The Academic Department is actively involved in the education process which guarantees high quality of the learning resources and courses developed by the University teaching staff.

Quality assurance policy, aimed at continuous improvement of the quality of educational programme delivery has been developed. This policy presumes involvement of departments and other organizational units of the University, as well as teachers, in the quality assurance procedures.

Areas for Improvement:

- The quality assurance system should be further developed.
- Practice-oriented teaching and learning methods should be focused on.
- Students should be involved in designing curriculum optimal and convenient for students
- In the long run educational programmes should be delivered in English in addition to Russian.

STANDARD 3. Assessment of student learning outcomes / competencies

Compliance with the standard: **full compliance**

Good practice

A well-defined system of knowledge assessment is established. It is supported with regulating documents. Every discipline included in the curriculum is supplied with educational and methodological materials regulating the rules and sequence of competence development. The competencies comply with the goals of the educational programme.

An effective system of bachelor and master students' involvement into research work (including the work based on cooperation with the institutes of the Russian Academy of Sciences) is developed and implemented at the University.

There are annual student research conferences organized by the Department. The system of support fostering students' active participation in national and international research conferences is developed.

A large number of students take part in numerous academic contests. Successful performance act as another independent evaluation of the quality of education.

Students are becoming more active in terms of academic international mobility.

Areas for Improvement:

- There should be double-degree bachelor and master programmes with the leading European and national universities in Chemistry.
- It is recommended to develop and implement an independent system of knowledge assessment, e-forms of student attestation as well as to use internet-based academic contests and other contemporary methods of student's knowledge evaluation.
- Independent experts should be involved in knowledge assessment or unscheduled assessment held at the end of the term or year (both in written and e-forms) in order to reveal students' actual knowledge and general programme completion level.

STANDARD 4. Quality assurance and competency of teaching staff

Compliance with the standard: **full compliance**

Good practice

The teachers working on the programmes are highly qualified: 98,5% of the staff are Doctor and Candidate degree holders.

Teacher's research work is funded from scientific national and international funds with results disseminated through active publications.

There are on-going joint projects with international educational institutions.

The teachers of the Faculty participate in exchange programmes, national, international and regional conferences; receive grants of the "Mobility" programme within the project 5/100 for participation in international research conferences.

There is a system of international lecturers' involvement to delivery of lectures and establishment of research laboratories within the focus fields of science and technology

Areas for Improvement:

- There should be further development of the system of continuous quality improvement of teaching and performance indicators in compliance with goals and objectives of the educational programme and requirements on students' training.
- The average age of the teaching staff at the Department of Chemistry should be optimized. Therefore, it is necessary to improve the employment system that would foster employment of prospective young scholars and improve the system of career advancement for young teachers.
- Teachers' duties in terms of their continuous further training should be better defined in the regulating documents.

INFORMATION ON THE LEADING TEACHERS OF THE STUDY PROGRAMMES

Gushchin Alexey Vladimirovich

Dr. of Chemistry, professor, Honorary Worker of Higher Professional Education of the RF. Hirsch Index 14 (Web of Science)

Fyodorov Alexey Yuryevich

Dr. of Chemistry, professor, Head of the Department of Organic Chemistry, author of 2 Russian and 2 international patents.

Grishin Dmitry Fyodorovich

Dr. of Chemistry, professor, Corresponding member of RAS, Head of the Department of Oil Chemistry, Honorary Worker of Science and Technology of the RF. Author of 5 patents and 300 research publications. Hirsch Index 12 (Web of Science).

Churbanov Mikhail Fyodorovich

Full member of RAS, Dr. of Chemistry, professor, Corresponding member of RAS, Head of the Department of Inorganic Chemistry, laureate of state prize in the sphere of science and technology. Author of 34 patents and author's certificates; author of 270 research publications. Hirsch Index 14 (Web of Science).

Semchikov Yury Denisovich

Dr. of Chemistry, professor, Head of the Department Macromolecular Compounds and Colloid Chemistry, Honorary Worker of Science of the RF. Author of 15 patents and 400 research publications. Hirsch Index 11 (Web of Science).

Krylov Valentin Alexeevich

Dr. of Chemistry, professor, Head of the Department of Analytical Chemistry, Head of the Laboratory of Analytical Chemistry; a winner of the State Research Scholarship "Outstanding Scientists of Russia" Author of 10 patents and 200 research publications. Hirsch Index 7 (Web of Science).

Abakumov Gleb Arsetyevich

Full member of the RAS, Dr. of Chemistry, professor at the Department of Physical Chemistry, Honorary Professor of NNU, the USSR State Prize laureate. Author of 21 patents and 550 research publications. Hirsch Index 19 (Web of Science).

Orlova Albina Ivanovna

Dr. of Chemistry, professor at the Department of Chemistry of Solids. Author of over 300 research publications. Hirsch Index 15 (Web of Science).

STANDARD 5. Learning resources and student support

Compliance with the standard: **full compliance**

Good practice

Material and technical resources are sufficient for the Chemistry educational programme. For the past two years the Department has purchased some state-of-the-art equipment.

Access to library and information resources including the ones from the Internet facilitates ensures successful programme completion.

The University subscribes to scholarly journals and provides its students and faculty with access to the databases of research works.

There is an effective system of students' research work organization with respect of their research interests and preferences.

Friendly and considerate relationship between teachers and students promotes a better quality of the programme delivery.

Areas for Improvement:

- There should be continuous improvement of the material and technical resources for research and education; some laboratories require repair work.
- There should be further reinforcement of safety precautions for both teachers and students working in chemical laboratories.
- It is recommended to monitor students' opinion in terms of conditions and organization of the educational process using students' websites and social networks.

STANDARD 6. Information system providing effective implementation of the study programme

Compliance with the standard: **full compliance**

Good practice

High level of information technology is achieved at the University. There is an information-intensive portal contacting all the necessary resources.

UNN uses the systems of gathering, analysis and use of information for managing the study programme. The information is provided through information boards, official web sites and social networks.

Information on research and educational activities of the staff is contained in the unified data base "Sotrudnik" (<https://sotrudnik.unn.ru>), comprised of several sections: a questionnaire, teaching work, research work, professional development).

In 2014 UNN launched a new unified system for document circulation "Galaxy".

UNN's official site in the section "Publication activity" on the page "Fund of electronic education resources" publishes electronic research and methodological documents by the teachers of the Faculty of Chemistry.

Areas for improvement:

- It is recommended to publish the benchmarking information on the achievements of the study programme in Chemistry as compared to other similar study programmes of other Russian and foreign HEIs.
- Guidance resources for students' independent work should be increased. There should be continuous work on improving the accessibility of educational resources, e-versions of textbooks and students' guidance materials in the University intranet.

STANDARD 7. Public information

Compliance with the standard: **full compliance**

Good practice

Current information on the educational programme is published on the official University website, the TV channel "The Volga", student website and social networks.

The Department actively cooperates with secondary schools of the city. It offers extra-curricular courses for school students interested in Chemistry, thus extending the list of prospective students. There are academic contests in Chemistry meant for school leavers, open house days.

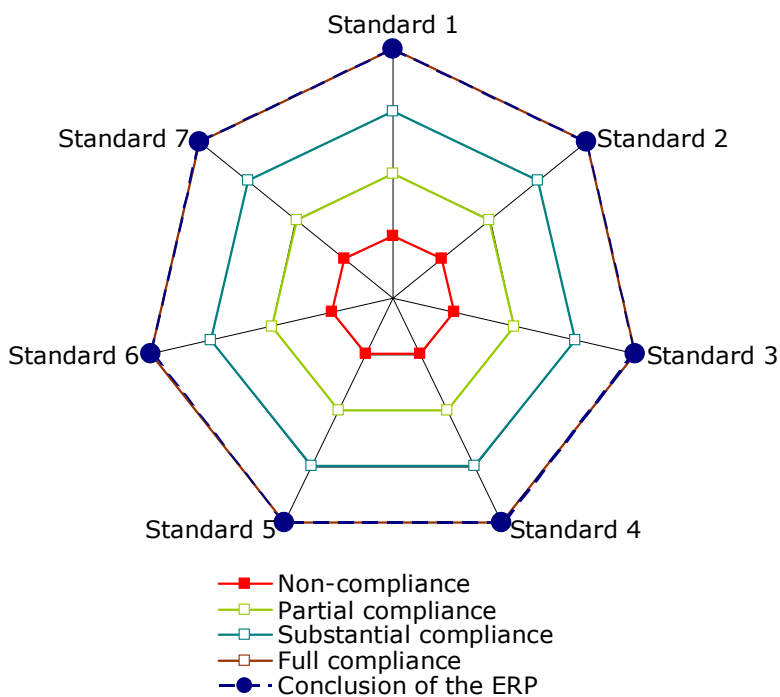
Teachers and students contribute to establishing cultural and educational environment extending far beyond the University environment into the city and region of Nizhni Novgorod due to public lectures, students' concerts, sports events, etc.

The Career center continuously updates information on vacancies available on the labour market and facilitates students' employment.

Areas for improvement:

- Further promotion of educational programme and achievements obtained within its framework shall attract prospective Chemistry students from other regions (and countries).
- For the convenience of potential employers it is recommended to publish the themes of graduate and post-graduate theses and the grade point average on the official webpage of the Chemistry Department.
- The Department of Chemistry should have a webpage not only in Russian and English but also in other languages (Chinese, for example).

DISTRIBUTION DIGRAM OF THE EXTERNAL REVIEW OUTCOMES



- Standard 1. Policy (mission, vision) and procedures for quality assurance
- Standard 2. Approval, monitoring and periodic review of programs and qualifications
- Standard 3. Assessment of student learning outcomes / competencies
- Standard 4. Quality assurance and competencies of teaching staff
- Standard 5. Learning resources and student support
- Standard 6. Information system providing effective implementation of the study program
- Standard 7. Public information

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 study programmes educational programmes in «Chemistry» (020100.62, 020100.68, 020101.65) delivered by the Federal State Autonomous Educational Institution of Higher Education «Lobachevsky State University of Nizhni Novgorod» **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 study programmes in «Chemistry» (020100.62, 020100.68, 020101.65)), delivered by the Federal State Autonomous Educational Institution of Higher Education «Lobachevsky State University of Nizhni Novgorod» for the period of 6 years.**

SCHEDULE OF THE SITE VISIT

Time	Event	Participants	Venue
9 November, Monday			
During the day	Meeting of panel members and coordinators at Nizhni Novgorod Airport		Airport of Nizhni Novgorod
10 November, Tuesday			
08.15	Arriving to Lobachevsky State University of Nizhni Novgorod		Building 2 of UNN
08.30 – 10.00	Training session for panel members	Panel members	Building 2 of UNN, Conference Hall
10.00 – 11.00	Meeting of panel members with academic administration of the University and people responsible for accreditation	Rector, Vice-Rectors руководитель центра качества образования, Head of the Academic Department, Panel members	Building 2 of UNN, Hall of Scientific Presentations
11.00 – 11.30	Closed panel meeting	Panel members	Building 2 of UNN, Hall of Scientific Presentations
11.30 – 13.00	Visit to the Department of Chemistry, its research and educational laboratories	Panel members, representatives of the Department of Chemistry	Laboratories of the Department of Chemistry, Laboratory of Nuclear Magnetic Resonance, University Campus
13.00 – 14.00	Lunch		University catering facilities
14.00 – 15.00	Meeting with people responsible for accreditation within a cluster of programmes	Dean of the Department of Chemistry, Vice-Deans, Panel members	Building 2 of UNN, room 338
15.00 – 15.30	Closed panel meeting	Panel members	Building 2 of UNN, Conference Hall
15.30 – 16.30	Meeting undergraduate and postgraduate students	Undergraduate and postgraduate students, Panel members	Building 2 of UNN, room 338
16.30 – 17.00	Closed panel meeting	Panel members	Building 2 of UNN, Conference Hall
17.00 – 18.00	Meeting with the representatives from the industry	Representatives from the industry, Panel members	Building 2 of UNN, room 338
18.00 – 18.30	Paperwork	Panel members	Building 2 of UNN, Conference Hall
11 November, Wednesday			
08.30 – 11.00	Guided tour around the city		Hotel «Ibis» historical downtown
11.00 – 12.00	Meeting with heads of the Departments	Heads of Departments, Panel members	Building 2 of UNN, room 338

Time	Event	Participants	Venue
12.00 – 12.30	Closed panel meeting	Panel members	Building 2 of UNN, Conference Hall
12.30 – 13.30	Lunch		University catering facilities
13.30 – 13.50	Transfer to G.A. Razuvaev Institute of Organometallic Chemistry of Russian Academy of Sciences	Panel members, representatives of the Department of Chemistry	49 Tropinin St.
13.50 – 14.50	Visiting G.A. Razuvaev Institute of Organometallic Chemistry of Russian Academy of Sciences - brunch of organic chemistry department, training site of the Department of Chemistry	Dean of the Department of Chemistry, Panel members	49 Tropinin St.
14.50 – 15.20	Transfer to UNN	Panel members and representatives of the Department of Chemistry	Building 2 of UNN
15.20 – 16.20	Meeting with the teaching staff and Doctorate students	Teaching staff and Doctorate students, Panel members	Building 2 of UNN, room 338
16.20 – 16.45	Closed panel meeting		Building 2 of UNN, Conference Hall
16.45 – 17.45	Meeting with alumni	Alumni, Panel members	Building 2 of UNN, room 338
17.45	Transfer	Panel members	
18.30 – 19.30	Concert with the introductory words on behalf of UNN Rector By Folk Music Group of Russia Academic Choir of UNN	Panel members, representatives of the Department of Chemistry and Institute of International Relations and World History	University Assembly Hall, Building 10
12 November, Thursday			
08.45	Arriving at Lobachevsky State University of Nizhni Novgorod		Building 2 of UNN
09.00 – 13.00	Closed panel meeting: making preliminary conclusions of a site visit, preparing a presentation for the University academic administration on the results of the panel work	Panel members	Building 2 of UNN Conference Hall
13.00 – 14.00	Lunch		University catering facilities
14.00 – 15.00	Final meeting of Panel members with UNN representatives	Panel members, representatives of the University academic administration, heads of Departments, teachers, students	Building 2 of UNN, hall of Scientific Presentations
15.00 – 17.00	Farewell dinner		Catering facilities of the University
17.00	Departure of panel members		