



SUMMARY REPORT

on Joint International Accreditation
of the study programme

«Energy Efficient and Sustainable Buildings»
in the field of study
«Construction» (08.04.01),

delivered by Peter the Great St.
Petersburg Polytechnic University

2017

While preparing this Summary Report we used information from the Self-Evaluation Report and the Final Report on the External Evaluation of the study programme “Energy Efficient and Sustainable Buildings” in the field of study “Construction” (08.04.01), delivered by Peter the Great St. Petersburg Polytechnic University.

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

© National Centre for Public
Accreditation, 2017

СОДЕРЖАНИЕ

General information on educational institution.....	4
Information on the study programme undergoing accreditation..	5
Achievements of the study programmes.....	7
External review panel.....	10
Information on the leading teachers of the educational programme	11
Compliance of the external review outcomes with the ncpa's standards.....	12
Distribution digram of the external review outcomes.....	17
Conclusion of the external review panel.....	18
Schedule of the site visit of the external review panel	19

GENERAL INFORMATION ON EDUCATIONAL INSTITUTION

Full name of the educational institution	<i>Federal State Autonomous Educational Institution of Higher Education "Peter the Great St. Petersburg Polytechnic University"</i>
Founders	<i>Ministry of Education and Science of the Russian Federation</i>
Year of foundation	<i>1899 – St. Petersburg Polytechnic Institute 1910 – St. Petersburg Peter the Great Polytechnic Institute 1914 - Petrograd Peter the Great Polytechnic Institute 1922 – M.I. Kalinin First Petrograd Polytechnic Institute 1924 – M.I. Kalinin Leningrad Polytechnic Institute 1990 - Leningrad State Technical University 1992 – St. Petersburg State Technical University 2002 – State Educational Institution of Higher Professional Education "St. Petersburg State Polytechnic University" 2011 - Federal State Educational Institution of Higher Professional Education "St. Petersburg State Polytechnic University" 2014 - Federal State Autonomous Educational Institution of Higher Education "St. Petersburg State Polytechnic University" 2015 - Federal State Autonomous Educational Institution of Higher Education "Peter the Great St. Petersburg Polytechnic University"</i>
Location	<i>195251, 29 Polytechnicheskaya Str., St. Petersburg, Russian Federation</i>
Rector	<i>Doctor of Sciences, Professor, corresponding member of the Russian Academy of Sciences Andrey Rudskoy</i>
License	<i>Series 90L01 № 0008982, reg. № 1949 dated from 19.02.2016 permanent</i>
State Accreditation	<i>Series 90A01 № 0001921, reg. № 1828 of 7.04.2016 valid till 11.03.2019</i>

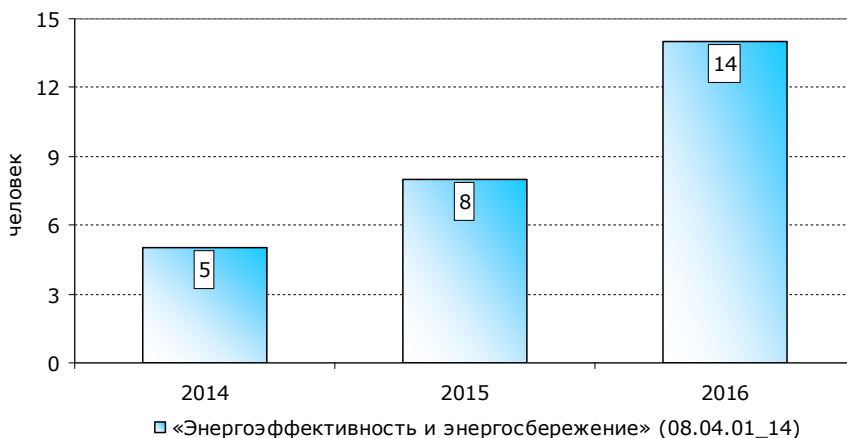
INFORMATION ON THE STUDY PROGRAMME UNDERGOING ACCREDITATION

Educational programmes	<i>"Energy Efficient and Sustainable Buildings" (08.04.01)</i>
Level of training / Standard period of training	<i>master's degree programme / 2 years</i>
Structural subdivisions (head)	<i>Institute of Civil Engineering (Director of the Institute –Professor Nikolay Vatin, Doctor of Sciences)</i>
Major department (head of major departments)	<i>Department "Construction of unique buildings and structures" (Professor Nikolay Vatin, Doctor of Sciences)</i>
Date of the site visit	<i>April 11-12, 2017</i>
People responsible for public accreditation of the study programme	<i>Dmitry Arseniev, Vice-Rector for International Relations</i>

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

Indicators	2017 г.
The educational programme "Energy Efficient and Sustainable Buildings" (08.04.01)	
Number of the given programmes in the RF	105
Number of higher educational institutions to offer the given programmes	105
Number of programmes – winners of the project (% from total amount of these programmes offered in the RF)	15 (14,3%)
Saint Petersburg	
Number of the given programmes offered in the region	15
Number of programmes – winners of the project (% from total amount of these programmes offered in the region)	2 (13,3%)
Number of higher educational institutions and branches in the region	96
Total number of programmes offered in the region	1606
Total number of programmes – winners of the project (% from total amount of these programmes offered in the region)	385 (24%)

КОНТРОЛЬНЫЕ ЦИФРЫ ПРИЕМА СТУДЕНТОВ НА ОБРАЗОВАТЕЛЬНУЮ ПРОГРАММУ «ЭНЕРГОЭФФЕКТИВНОСТЬ И ЭНЕРГОСБЕРЕЖЕНИЕ» (08.04.01)



ACHIEVEMENTS OF THE STUDY PROGRAMMES

Quality of implementing the study programme

The quality of the study programmes is assured by the high level of qualification of the teaching staff, which is growing from year to year; active research work of the teachers and students; extensive international connections and student and teacher academic mobility; close cooperation with employers; designing and developing teaching and learning materials in all subjects, including electronic materials.

Guaranteeing of the up-to-date educational content

The up-to-date educational content is provided through systematic updating and reviewing the study programmes (including reengineering of the syllabi and working plans), implementing the outcomes of the teachers' research work in the academic process; regular invitation of visiting lecturers from foreign institutions, including those from Top500 of the world ranking. The programme is annually updated with the account of employers' recommendations.

Staff composition (competency of the teaching staff)

The teachers of the Master's programme have sufficient qualifications and the experience in research, methodological and administrative work for the programme profile. 20 teachers are engaged in the study programme delivery; 13 teachers (65%) including 7 (35%) Doctors of Sciences. The majority of the teachers (70%) are leading practitioners in their field. Every teacher participates in the human resource development programmes, does research work, and has publications in scientific journals indexed in the data bases of RSCI, Scopus, Web of Science.

Independent assessment of student learning outcomes

In 2016 SPbPU took 11th place in the ranking of Russia's best HEIs. There are only 5 HEIs of Civil Engineering in Russia, which have the status of the National Research University. And there is only one HEI of Civil Engineering in Saint Petersburg with this status - SPbPU Institute of Civil Engineering. In 2016 the Bachelor double degree programme in Construction (jointly with Mikkele University, Finland) was successfully accredited.

Educational resources

The study programme is provided with adequate material and technical resources which meet all the necessary requirements. Contemporary rooms and equipment are available. All classes are held in the building of the Institute of Civil Engineering and the Research Building. Computer rooms are equipped with the software necessary to develop students' competencies. Every Department of the Institute has a systems administrator who maintains and monitors computers and technical equipment. For independent work and research activity of the students, all

the ICE computers are connected to SPbPU electronic library, which has an open free access to the global electronic library systems and databases, and also to the courses of the Moodle system. There is free full range access to the information resources of the Internet on the university campus (Wi-Fi Eduroam system is installed on campus, as well as various internal networks for every classroom);

Active research work in the Institute ensures effective training of highly qualified researchers in the Doctoral programmes. All teachers are required to do research and publish papers in peer reviewed journals and participate in conferences and academic mobility programmes. The obtained research outcomes are used in the teaching process as teaching materials and also as a basis for student research work. The students jointly with the teachers participate in research; publish research outcomes in peer-reviewed research foreign and Russian editions. All necessary conditions are created at the Institute for the students and teachers to present and publish their research work findings.

In September 2016 the Institute of Civil Engineering together with the University of Montenegro and Riga Technical University conducted the international research and practice conference "Green Construction – 2016". The Conference was supported by Saint Petersburg Government. The research and expert company the Centre for Construction Expertise was the co-organizer and operator of the conference.

For two years in a row SPbPU has taken an active part in the international Association of the leading Universities - World Cities World Class University Network, WC2. The Director of the study programme Energy Efficient and Sustainable Buildings is also a member of WC2. In 2015 and 2016 students and teachers of the ICE participated in the symposium working in the international teams of the Eco-Campus Club.

Student academic mobility

The students and teachers are involved in the academic mobility programmes with Polytechnic University of Milan (Italy), Technische Universität Graz (Austria), Technische Universität München (Germany), Technical University in Košičach (Slovakia), University of Applied Sciences (Mikkeli, Finland), the University of Montenegro. Strongly motivated students with good academic performance and foreign language proficiency have opportunities of studying abroad, participating in exchange programmes, summer and winter schools and conferences in the partner Universities.

Graduates' employability

The programme's graduates are in high demand in Saint Petersburg, other regions of Russia and abroad. At the same time they work part time in construction companies. Teaching in a foreign language and mobility opportunities contribute to the attractiveness of the programme for applicants.

International projects

In September of 2016 together with the University of Genoa (Italy) Erasmus+ project No.: 561890-EPP-1-2015-1-IT-EPPKA2-CBHE-JP Master Degree in Innovative Technologies in Energy Efficient Buildings for Russian & Armenian Universities and Stakeholders – “MARUEEB” was implemented.

In 2,5 года years of the programme international collaboration in the research and education was established with Technical University of Graz (Austria), Metropolitan Autonomous University (Mexico), the University of São Paulo (Brazil), City, University of London (Great Britain), Riga Technical University (Latvia), Wilhelm Leibniz University in Hanover (Germany).

Public information

Information about the programme is available at the English version of the SPbPU site and in the English language brochure. The Coordinator of the programme is responsible for updating information. The information is renewed annually before the start of the admission campaign.

The site contains a full description of the study programme, tuition fees, and a programme catalogue with the description of the programme's goals, admission requirements; programme's partners and contact information.

The information about the programme is also available to all stakeholders (school leavers, parents, teachers, employers) at the open door event, where prospective students can get all the necessary information about the programme from its managers and leading teachers.

EXTERNAL REVIEW PANEL



Elena Zima (Saint-Petersburg)

Review Chair, Russian expert

PhD in Engineering, Associate Professor, Rectorate Adviser, Saint Petersburg State Chemical Pharmaceutical Academy, ex vice-rector for Academic Affairs, Novosibirsk State University of Architecture, Design and Arts, Secretary of Regional Commission for quality assessment of Higher Education in the Siberian Federal District

nominated by the Guild of Experts in Higher Education



Prof. Dipl.-Phys. Axel Bretzke (Biberach)

Deputy Review Chair, international expert

Professor for Energy Use and Energy Technology, Biberach University of Applied Sciences, energy consultant for cities and industry, member of German Engineer Association and German Network of Energy Consultants

nominated by the Accreditation Agency EVALAG
(Evaluationsagentur Baden-Württemberg)

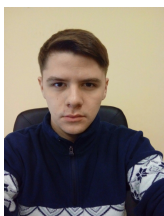


Julia Jedelhauser (Munich)

Panel member, representative of professional community, international expert

Head of the building authority City of Immenstadt, member of the Bavarian Chamber of Architects (Munich, Bavaria)

nominated by the Accreditation Agency EVALAG
(Evaluationsagentur Baden-Württemberg)



Denis Nizhegorodtsev (Saint-Petersburg)

Panel member, representative of student society, Russian expert

1st year student of master programme, Faculty of Civil Engineering, Saint-Petersburg State University of Architecture and Civil Engineering

nominated by Saint-Petersburg State University of Architecture and Civil Engineering

INFORMATION ON THE LEADING TEACHERS OF THE EDUCATIONAL PROGRAMME

Ksenia Strelets

Ph.D. of Technical Sciences, Associate Professor of Department "Construction of unique buildings and structures", Deputy Director for further vocational education, Director of Centre of further vocational educational programmes

Marina Petrochenko

Ph.D. of Technical Sciences, Associate Professor Department "Construction of unique buildings and structures", Coordinator of international master's degree programmes, the Presidential Scholarship winner in the nomination "Diploma Project", a grant recipient of the Committee on Science and Higher Education of St. Petersburg government

Alexei Ulybin

Ph.D. of Technical Sciences, Associate Professor at the Department "Construction of unique buildings and structures", President of Association of Surveyors of buildings and constructions

Artur Girgidov

Doctor of Sciences, Professor of Department for Hydraulics, Honored Worker of Science of the Russian Federation, holder of the title "Veteran of labour" (1987), recipient of the badge of the Ministry of Education and Science "For excellent work"

Vladimir Badenko

Doctor of Sciences, Professor at the Department of Water-management and Hydro-technical Construction

Issa Togo

Ph.D. in Technical Sciences, Head of the Department of Water-management and Hydro-technical Construction, Chair of bilateral Russian-French Committee, Director-General of "Alfastroi Servis" Company

Irina Kudryasheva

Ph.D. in Technical Sciences, Associate Professor of the Department of Water-management and Hydro- technical Construction, holder of the Honorary Certificates for scientific supervision, Laureate of "GidroOGK" award for the best research work in Hydraulic Power Engineering (2006), Honored worker of Higher Vocational Education of the RF (2008)

Olga Kolosova

Doctor of Sciences, Professor at the Department of "Computational intelligent technologies", , member of Educational and Methodological Board in the field of study "Innovation Studies", Co-Chair of Educational and Methodological Board in the field of study "Innovations Management"

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

STANDARD 1. Programme profile

Compliance with the standard: **partial compliance**
(satisfactory)

Good practice:

The study programme "Energy Efficient and Sustainable Buildings" is delivered in English for both national and international students, which fosters students' and teachers' academic mobility and allows integrating new achievements gained in the subject area into the learning process first hand.

High qualification of the teaching staff employed at the programme.

Availability of research journals indexed in SCOPUS and Web of Science;

Good student support including the support of academic mobility of students.

Areas for improvement:

All the set goals of the study programme should be clearly specified in the regulatory and guidance documents pertaining to "Energy efficiency and energy conservation" as well as to "sustainable buildings".

Communication with employers and orientation towards professional standards including international professional standards should be formalised and documented regularly.

It is necessary to enhance the activity of the teaching staff to do funded research and involve students.

It is necessary to implement regular measures of attracting well-qualified personnel in order to achieve the programme goals related to energy conservation and sustainable buildings.

STANDARD 2. Curriculum

Compliance with the standard: **partial compliance**
(satisfactory)

Good practice

The study programme combines theoretical and research components in training students. The curriculum and the working programmes of the courses make it possible to design individual learning paths including national and international academic mobility.

E-learning and distant learning technologies are widely used in the programme delivery; the needs and requirements of working students and students with special needs are also taken into consideration.

Areas for improvement:

The key drawback of the programme is the insufficient documented contents, which can result in developing insufficient students' competencies related to energy conservation and sustainability, which is not referred to in the curriculum.

It is advisable to keep students and even the staff informed on how they can contribute to the contents of the learning process, students should be more actively involved in such activities

It is recommended to increase the share of practical disciplines in the form of additional practice-oriented selective courses within the curriculum and to increase the share of on-the-job placement at employer's premises.

STANDARD 3. Student assessment

Compliance with the standard: **full compliance (Very good)**

Good practice

The intended learning outcomes are assessed in accordance with the developed and approved local regulatory acts in compliance with the acting law on education of the Russian Federation.

High level of qualification of the teaching staff assessing students' achievements.

In all the courses, practical training sessions and research work delivered within the programme, there seems to be adequate criteria for evaluation. The graduation theses also comply with the level of the awarded qualification.

There is a flexible system of distinct and objective rules regulating students' missing classes because of illnesses or other mitigating circumstances.

Areas for improvement:

It is recommended that a more flexible point and ranking system be implemented in order to evaluate students' achievements and make them compatible with the ECTS.

Particular attention should be paid to the processes connected with informing students on the criteria for evaluation of their academic achievements, possibly including this aspect into a feedback questionnaire within the quality management system.

There should be a rationale in optimising the system of documents regulating students' achievements in order to ensure its transparency.

STANDARD 4. Organization of the study programme

Compliance with the standard: **substantial compliance (good)**

Good practice

Students' admission to the programme, the process of teaching and learning and their graduation procedures are regulated by the regulatory and guidance acts developed and approved by the University in compliance with the current legislation of the Russian Federation.

The University is eligible to acknowledge students' background education or qualification, scientific degrees or titles obtained abroad in accordance with the procedures established by the University.

International students benefit from the flexible support system.

Upon the programme completion students may receive the European Diploma Supplement.

Active involvement of the University in international partnerships enabling students with extensive international opportunities.

Areas for improvement:

It is necessary to involve the teaching staff employed in the programme delivery in the development and expertise of the entrance assessment materials (tests).

It is recommended that roles and responsibilities should be distributed on the level of regulating documents of the programme management.

It is advisable to optimise students' workload carried out independently, thus, making the workload of students' independent work comply with the requirements to its results.

There should be minimum one staff meeting every semester - internal and external lecturers as well as students for coordination (administrative as well as content).

STANDARD 5. Resources

Compliance with the standard: **substantial compliance (good)**

Good practice

The study programme "Energy Efficient and Sustainable Buildings" is properly and adequately financed from different sources. Students' and teachers' academic mobility is financed in the framework of European grants for academic mobility, such as Erasmus + Key Action 1 in cooperation with over 20 European universities.

In compliance with the current Russian legislation there are regular procedures used to employ the teaching staff and assess their qualification, which ensures the adequate quality of courses (modules) delivery, meant to develop students' competencies in the sphere of

energy efficiency and sustainable buildings. There are regular further training sessions for the (internal and external) teaching staff.

Contemporary IT equipment and software necessary to develop students' competencies in the sphere of energy efficiency and sustainability (life cycle costs, total costs of ownership, maintenance, facility management, etc.).

The study programme uses the library, which provides access to the global e-library systems and databases like Scopus, Web of Science, Cambridge University Press, Elsevier eBooks Collections, Oxford University Press, OATD (Open Access Theses and Dissertations) etc.

Areas for improvement:

It is necessary to establish regular procedures aimed at attracting well-qualified teaching staff in order to meet the programme goals in the sphere of energy conservation. Knowledge and experience of the staff for the competencies to be conveyed has to be documented.

It is recommended to establish laboratories for research into the impact of sunlight on different materials, install ventilation and conditioning equipment, and the equipment for assessment of the air quality, daylight use, as well as sustainability (ecological building material footprints, grey energy (embodied energy) of building material, LLC (life cycle costs), TCO (total costs of ownership), facility management, cradle to cradle, etc.).

It is necessary to install up-to-date software in order to carry out quality activities in the sphere of energy conservation as well as the topic of sustainability in the building industry.

STANDARD 6. Quality assurance


Compliance with the standard: **partial compliance**
(satisfactory)

Good practice

The concept of the University quality assurance is regulated by the Quality management policy of SPbPU developed in the framework of the certified Quality Management System (QMS). The concept of the study programme quality is regulated by the University (local) educational standards which are developed and implemented along with the programmes for development and procedures of the attestation of the University subdivisions.

Areas for improvement:

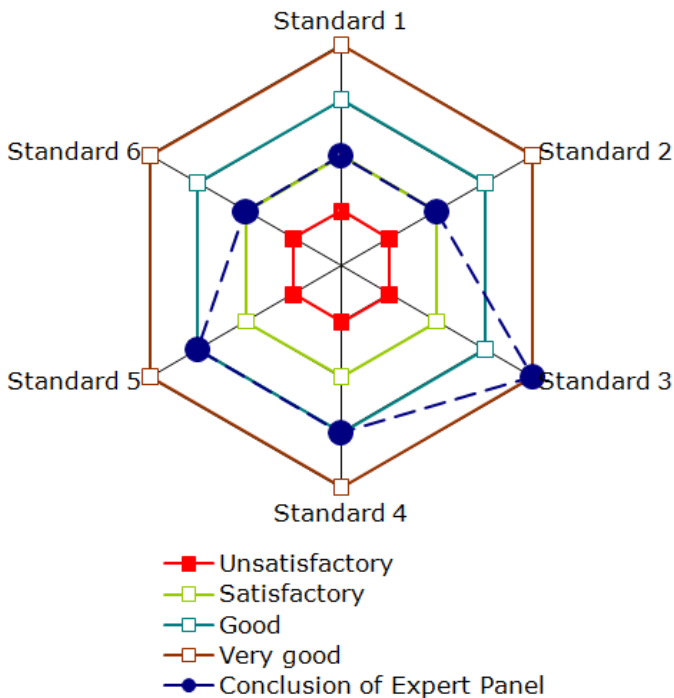
It is necessary to bring in compliance the concept of quality assurance of the study programme and the concept of the quality assurance of the University, thus, ensuring practical application of the necessary



procedures and instruments of the programme quality assurance as well as procedures for mitigating the revealed drawbacks;

Students and teachers should be more closely involved in the procedures of development, monitoring and improvement of the programme. There should be at least one meeting every semester referring to content and organisational matters..

DISTRIBUTION DIGRAM OF THE EXTERNAL REVIEW OUTCOMES



Standard 1. Programme profile

Standard 2. Curriculum

Standard 3. Student assessment

Standard 4. Organisation of the study programme

Standard 5. Resources

Standard 6. Quality assurance

CONCLUSION OF THE EXTERNAL REVIEW PANEL

Based on the self-evaluation report analysis, documents and data submitted, interviews with the representatives of the professional communities, students, post graduates, doctor-degree students, staff and administration of the educational institution the External Review Panel came to the conclusion that the educational programmes "Energy Efficient and Sustainable Buildings" in the field of study "Construction" (08.04.01), delivered by Peter the Great St. Petersburg Polytechnic University **substantially complies** with the standards and criteria of public accreditation of the National Centre for Public Accreditation and evaluation.

The External Review Panel recommends that the National Accreditation Board and Accreditation Agency evaluate **accredit the educational programme Efficient and Sustainable Buildings" (08.04.01), delivered by the Great St. Petersburg Polytechnic University.**

SCHEDULE OF THE SITE VISIT OF THE EXTERNAL REVIEW PANEL

Time	Event	Participants	Venue
April 10th, Monday			
During the day	Experts' arrival to St.Petersburg, Transfer to the "Dostoevsky" Hotel (19, Vladimirsky prospect)		
17.00 – 18.30	Internal preparatory meeting of the expert team. Training.		Conference-hall "Dostoevsky" Hotel
20.00	Dinner (for foreign experts)		The Hotel cafe
April 11th, Tuesday			
8.20	Meeting in the Hotel hall (for foreign experts). Transfer to SPbPU.		"Dostoevsky" Hotel (19, Vladimirsky prospect)
8.45	Arrival to SPbPU		16 th Academic Building (28a, Grazhdansky prospect)
09.00 – 10.30	Internal meeting of expert team	Expert team	Room 220a
10.30 – 11.30	General meeting of the University heads, heads of departments and Expert team	Rector, Vice-rectors, Heads of the departments, Expert team	Room 220
11.30 – 12.00	Document review. Expert evaluation of the graduation thesis works.	Expert team	Room 221
12.00 – 13.30	Lunch	Expert team	University canteen
13.30 – 13.45	Transfer to the SPbPU Main Building		29, Politekhnikeskaya str.
13.45 – 14.15	Visit to the Library Complex	Expert team	The Main Building Library
14.15 – 14.30	Transfer to the Institute of Civil Engineering		29, Politekhnikeskaya str.
14.30 – 15.15	Meeting with Institute Director and Deputy Heads	Institute Director, Deputy Heads, Expert team	Room 220,
15.15 – 15.30	Coffee-break		Room 411

Time	Event	Participants	Venue
15.30 – 16.30	Meeting with program manager, teaching and administrative staff	Head of the Department, program manager, program coordinator, Expert team	Room 411
16.30 – 17.30	Tour through the Academic Building: visits to the main rooms, labs, equipment review	Expert team	
17.30 – 18.00	Meeting with employers and alumni	Employers, Alumni, Expert team	Room 241
18.00 – 18.15	Internal meeting of expert team	Expert team	Room 411
18.20	Transfer to the Hotel		29, Politekhnikeskaya str.
20.00	Dinner at the Hotel (for foreign experts)		The Hotel cafe
April 12 th , Wednesday			
08.30	Meeting in the Hotel hall (for foreign experts). Transfer to SPbPU.		“Dostoevsky” Hotel
08.50	Arrival to SPbPU		16 th Academic Building (28a, Grazhdansky prospect)
09.00 – 09.15	Internal meeting of expert team	Expert team	Room 221
09.15 – 10.15	Meeting with students	The students, Expert team	Room 220a
10.15 – 10.30	Coffee-break	Expert team	Room 220
10.30 – 12.00	Meeting with teaching staff	The teaching staff, Expert team	Room 220a
12.00 – 12.45	Extra meeting (upon request)	Expert team	Room 220a
12.45 – 14.00	Lunch		University canteen
14.10 – 16.00	Internal meeting of expert team. Assessment form completing, work with the report. Preparation of oral report.	Expert team	Room 221
16.00 – 17.00	Feedback to program management. Final meeting of expert teams with University representatives	University representatives, Expert team	Room 220
17.00 – 17.30	Free communication with the experts		Room 220
17.40	Transfer to the Hotel		
20.00	Dinner at the Hotel (for the foreign experts)		