



SUMMARY REPORT


on public accreditation of the educational programme

«Physical Methods and Information Technologies in
Medicine»

in the field of study

«Physics» (03.04.02)

Delivered by the Federal State Budgetary Educational
Institution of Higher Education «Altai State University»



2017 г.

While preparing this presentation we used information from the Self Evaluation Report and the Report of the External Review Panel of the educational programme « Physical Methods and Information Technologies in Medicine» in the field of study «Physics» (03.04.02) delivered by the Federal State Budgetary Educational Institution of Higher Education «Altai State University».

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 Budgetary Educational Institution of Higher Education «Altai State University»</i>	
Founders	<i>Ministry of Education and Science of the Russian Federation</i>	
Year of foundation	<i>1973 — Altai State University</i>	
	<i>2002 — State Educational Institution of Higher Education «Altai State University»</i>	
	<i>2011 — Federal State Budgetary Educational Institution of Higher Professional Education «Altai State University»</i>	
	<i>2016 — Federal State Budgetary Educational Institution of Higher Education «Altai State University»</i>	
Location	<i>656049, Altai Region, Barnaul, Lenina Pr. 61</i>	
Rector	<i>Zemlyukov Sergey Valentinovitch, D.J.S., Professor</i>	
License	<i>Series 90Л01 № 9352 reg. № 2296 dated 29.07.2016 permanent</i>	
State Accreditation	<i>Certificate of State Accreditation Series 90A01 № 2497, reg. № 2374 dated 24.11.2016 valid till 31.05.2019</i>	
Number of students	<i>10545</i>	
	<i>including:</i>	
	<i>full-time</i>	<i>7537</i>
	<i>on-site and off-site</i>	<i>183</i>
	<i>part-time</i>	<i>2825</i>

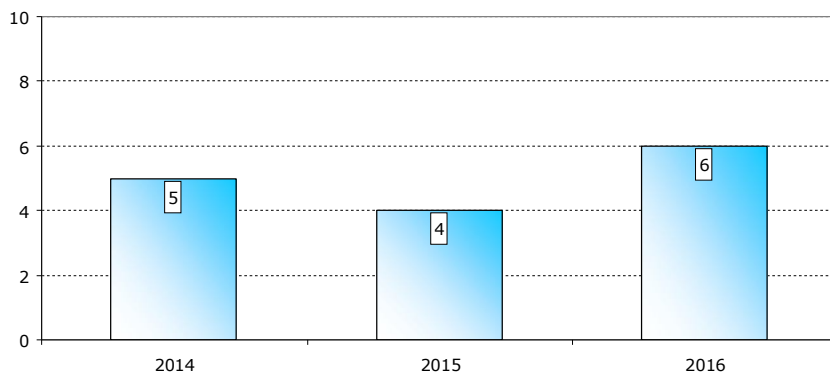
INFORMATION ON THE EDUCATIONAL PROGRAMMES UNDERGOING ACCREDITATION

Educational programme	<i>«Physical Methods and Information Technologies in Medicine» (03.04.02)</i>
Level of training / Standard period of training	<i>Master's degree programme / 2 years</i>
Structural subdivision (head)	<i>Faculty of Physics and Technology (Doctor of Physical and Mathematical Sciences, Professor Polyakov Viktor Vladimirovich)</i>
Major departments (heads)	<i>Department of General and Experimental Physics (Doctor of Physical and Mathematical Sciences, Professor Plotnikov Vladimir Aleksandrovich)</i>
Date of the site visit	<i>15-17 November, 2016</i>
Person responsible for public accreditation of the educational programme	<i>Kucher Sergey Nikolaevich, Head of the Sector of Education Quality</i>

SAMPLING RESULTS OF THE PROJECT «THE BEST EDUCATIONAL PROGRAMMES OF INNOVATIVE RUSSIA»

Indicators	2016
Cluster of the educational programmes «Physics» (03.04.02)	
Number of the given programmes in the RF	71
Number of higher educational institutions to offer the given programmes	71
Number of programmes – winners of the project (% from total amount of these programmes offered in the RF)	19 (26,76%)
Altai Region	
Number of the given programmes offered in the region	2
Number of programmes – winners of the project (% from total amount of these programmes offered in the region)	1 (50,00%)
Number of higher educational institutions and branches in the region	28
Total number of programmes offered in the region	265
Total number of programmes – winners of the project (% from total amount of these programmes offered in the region)	47 (17,74%)

REFERENCE DATA ON STUDENT ENROLLEMENT FOR EDUCATIONAL PROGRAMME « PHYSICAL METHODS AND INFORMATION TECHNOLOGIES IN MEDICINE» (03.04.02)



ACHIEVEMENTS OF THE EDUCATIONAL PROGRAMMES

Quality of the delivered educational programmes

Quality of the delivered educational programmes is ensured by highly qualified teaching staff and systematic staff development, considerable research activities of the teaching staff and students, close cooperation with employers, development and continuous improvement of learning resources including the electronic ones.

Providing up-to-date contents of education

The up-to-date content of education is ensured by annual reviewing and renewal of the educational programme and curricula with the account of employers' recommendations. The University signed agreements about joint educational activities with RSHI «Altai Regional Oncologic Dispensary», RSHI «Diagnostic Centre of Altai Region», FSBIH «Federal Centre of Traumatology, Orthopedics and Endoprosthesis Replacement». The branch of the Department of General and Experimental Physics was opened on the basis of RSHI «Altai Regional Oncologic Dispensary». The University on a regular basis cooperates with the Institute of Strength Physics and Materials Science and with the Institute for Water and Environmental Problems (Siberian branches of the Russian Academy of Sciences).

Teaching staff

Basic education and qualification level of the teachers involved in the educational process comply with the requirements. 11 teachers are involved in the educational process, 9 of them (82%) have academic degree including 2 Dr. Sc. (18%); 1 person (9%) has significant practical experience in healthcare institutions, and he runs the Department of radiation treatment in the Altai Regional Oncologic Dispensary. According to the departments rating based on the results of research and educational activities at the end of 2015, the Department of General and Experimental Physics took the 4th place among 19 departments of natural sciences.

Independent assessment of knowledge

In 2013 the educational programme won the competition of innovative educational programmes, and it was given the status «Innovative educational programme of ASU». The Federal Internet Exam in the sphere of Professional Education (FIPE) is one of the forms of external independent assessment of the educational achievements of students studying in the Faculty of Physics and Technology.

Independent assessment of learning outcomes was taken in June, 2016 (33 % of students – 2nd level, 67 % – 4th level).

Educational resources

The educational programme is provided with necessary material and technical resources in accordance with the requirements. The Laboratory of Medical Physics is available to teachers and students. The ASU local area network allows the students to use e-learning courses as well as information resources and knowledge base including foreign electronic multimedia study guides on Medical Physics. The Laboratory is provided with physical and computerized hardware that is widely used when preparing course and graduation papers.

Research activity

According to the rating of university research activities ASU took the 37th place among 238 Russian higher education institutions in 2016. For the last 3 years 20 study guides, 185 scientific articles have been published. Some of them were included in RSCI, Scopus and Web of Science. 126 students took part in scientific events and Olympiads of different levels. 16 teachers actively participate in the international exhibitions, research and development competitions as well as competitions on research publications. The students work in the Materials and Structures Quality Control Laboratory opened together with the Institute of Strength Physics and Materials Science SB RAS. The undergraduates and doctoral students have won national and regional Olympiads, conferences and competitions many times.

Academic mobility of students

The UNESCO Department «Innovative Education in the Cross border Region» was opened in the University. The competition for travel grants is held in ASU. In 2016 4 students of the Faculty of Physics and Technology have served apprenticeship in the Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov. This training was taken under the programme of the University of The Shanghai Cooperation Organisation that will help the students to get a double degree.

Employability of graduates

ASU is the regional centre of employment and labour market adaptation for graduates. The university actively cooperates with the healthcare institutions that train staff in Medical Physics. The graduates work in healthcare institutions as experts in such spheres as computer modeling in Medicine, medical information processing methods, use of laser radiation and atomic radiation beams in Medicine, dosimetric and radiobiological radiotherapy, technical support of medical equipment.

Employability of graduates is 100%.

International projects

Main international projects of ASU are: establishment of the Asian Universities Association, organization of the Asian Students' Forums, the International Educational Forum «Altai-Asia 2012, 2014», the International Forum of Asian Youth Leaders «Altai-Asia 2016». ASU is the base higher education institution of Shanghai Cooperation Organization University. In 2013 the memorandum on establishment of the Russian-American Anti-Cancer Center in ASU was signed (Arizona State University, ASU, ASMU, Altai Regional Oncologic Dispensary, Institute of Chemical Biology and Fundamental Medicine SB RAS).

Public awareness about the programme

The information about the programme is placed on the University web-site and on the site of the Faculty of Physics and Technology. The University's positive image is formed by news about the activities of the teaching staff and students on the Faculty's web-site. There are interviews with graduates in the section «Gallery of Students». It helps the applicants and their parents to find more information about employment and demand for graduates.

The teachers actively cooperate with the Regional Academic Methodological Association of Physics Teachers. Seminars and webinars for the teachers and student of general education institutions of Altai Region make it possible to cover the issues of the graduates' employment, their academic and practical training in the Faculty

EXTERNAL REVIEW PANEL



Dunaevsky Grigory Yefimovich (Tomsk)

Review Chair

Doctor of Technical Sciences, Professor, Head of the Department of Radio Electronics at the Faculty of Radio Physics, Rector's Office Adviser on research activities, Director of the Centre for Science and Education «Materials and space technologies» FSAEI HE «National Research Tomsk State University», full member of the International Higher Education Academy of Sciences, full member of RANS, member of the Guild of Experts in Higher Professional Education

A nominee of the Guild of Experts in Higher Education



Vorozhtsova Ludmila Aleksandrovna (Arkhangelsk)

Deputy Review Chair

Candidate of Physical and Mathematical Sciences, Associate Professor, Head of Monitoring and Forecasting Department FSAEI HE «Northern (Arctic) Federal University named after M.V. Lomonosov», member of the Guild of Experts in Higher Professional Education

номинарована Гильдией экспертов в сфере профессионального образования



Nikitin Aleksey Vladimirovich (Barnaul)

Panel member, representative of the professional community

Chief Engineer in the joint-stock company «Barnaul Special Design Bureau «Vostok»

A nominee of the joint-stock company «Barnaul Special Design Bureau «Vostok»



Rudenko Dmitry Sergeyeovich (Barnaul)

Panel member, representative of students

4th year student of the programme 16.03.01 «Technical Physics», the Faculty of Special Technologies, FSBEI HE « Polzunov Altai State Technical University»

A nominee of the FSBEI HE « Polzunov Altai State Technical University»

INFORMATION ON THE LEADING TEACHERS OF THE EDUCATIONAL PROGRAMMES

Solomatina Konstantin Vasilyevich

Associate Professor of the Department of General and Experimental Physics, member of the Regional Academic Methodological Association of Physics Teachers, leading expert of the subject specific committee in Physics in Altai Region, member of committees on the national and regional Olympiads for pupils.

Plotnikov Vladimir Aleksandrovich

Head of the Department of General and Experimental Physics, leading researcher of Materials and Structures Quality Control Laboratory in the Institute of Strength Physics and Materials Science SB RAS, member of the editorial board of the Izvestiya of Altai State University Journal.

Utemesov Ravil Muratovich

Candidate of Technical Sciences, Associate Professor of the Department of General and Experimental Physics, Head of the Medical Physics Laboratory, Executive Secretary of the Admission Board of the Faculty of Physics and Technology, leading expert of the subject specific committee in Physics in Altai Region, Deputy Chairman of the subject specific committee in Physics in Altai Region, member of the Regional Academic Methodological Association of Physics Teachers.

Shimko Elena Anatolyevna

Candidate of Pedagogic Sciences, Associate Professor of the Department of General and Experimental Physics, Head of the subject specific committee in Physics, Deputy Manager of the Department of General and Experimental Physics branch in the Altai Regional Oncologic Dispensary, Chairman of the subject specific committee in Physics in Altai Region, leading expert of different regional committees, Deputy Director of the Regional Academic Methodological Association of Physics Teachers.

Makarov Sergey Viktorovich

Candidate of Physical and Mathematical Sciences, Associate Professor of the Department of General and Experimental Physics, Chairman of Primary Trade Union Organization at the Faculty of Physics and Technology.

Sagalakov Anatoli Mikhailovich

Doctor of Physical and Mathematical Sciences, Professor, Professor of the Department of General and Experimental Physics, Associate Member of the Siberian Branch of the Russian Academy of Sciences, Associate Member of the International Higher Education Academy of Sciences, Honorary Worker of Altai State University, Honorary Worker of Russian Higher Education.

Andruhova Tatiana Vitalievna

Candidate of Physical and Mathematical Sciences, Associate Professor of the Department of General and Experimental Physics.

Dmitriev Sergey Fedorovich

Candidate of Technical Sciences, Associate Professor of the Department of General and Experimental Physics, expert of the Russian Science Citation Index (RSCI), Director of the small innovative enterprise LLC «NPF «Gamma-Test» at Altai State University.

Alekseev Anatoli Nikolaevich

Candidate of Technical Sciences, Associate Professor of the Department of General and Experimental Physics, leading expert on the subject specific committee in Physics in Altai Region.

GOOD PRACTICE

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

Strategic goals of the educational programme are documented in the Programme on the University development strategy for 2012-2016. Now the University is preparing for adoption of the Development Programme for 2017-2021 in accordance with the Concept of long-term social and economic development of the Russian Federation by 2020, with the Siberian Development Strategy by 2025, with the Strategy of social and economic development of Altai Region by 2025, with the regional programme «Integrated Development of Altai Priobye».

The university is fully entitled to participate in the programme «Core Universities».

Standard 2. Design and approval of programmes

The mission and objectives of the educational programme undergoing accreditation are documented in line with the University mission.

In 2013 the programme won the ASU competition of innovative educational programmes and was given the status «Innovative educational programme of FSBEI HPE «Altai State University».

Review of the curricula and educational programmes is carried out in accordance with the recommendations of the State Examination Board.

Professionals of the healthcare institutions are involved in the training process and in independent assessment as members of the State Examination Board.

Standard 3. Student-centered learning and assessment

The documents regulating the assessment of learning outcomes from the entrance tests to the State Final Examination are placed on the university web-site.

The point-rating system of assessment was introduced in the University in 2014-2015.

Conditions for students' research development were created in the University.

There is information on the University web-site about the possibility of filing grant applications (educational or research).

Assessment of students' learning outcomes is carried out both with and without the participation of external experts: during graduates' State Final Examinations, during the Federal Internet Exam in the sphere of Professional Education (FIPE).

There are additional professional training programmes for induction of foreign master's programme applicants.

The heads of the educational programme undergoing accreditation try to take into account differences in the initial training (when entering

the master's programme).

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

The normative documents regulating the procedures of students' support are approved and placed on the University web-site.

Systematic work on career guidance is carried out in the cooperation of the Faculty of Physics and Technology with the Department of the Regional Academic Methodological Association of Physics Teachers.

Systematic work on students' involvement in research activity including the competition for travel grants is carried out at the University.

ASU graduates have the possibility of getting European Diploma Supplement.

The UNESCO Department «Innovative Education in the Transboundary Region» works on expanding academic cooperation and occupational mobility of teachers and students.

Standard 5. Teaching staff

High level of the teaching staff qualification (82% of degree holders, including 18% of Doctors of Sciences). Experts from Altai State Medical University and employers are involved in the educational process.

According to AIS «Case», the Department of General and Experimental Physics took the 4th place among 19 departments of natural sciences in 2015.

The Federal Service for Intellectual Property registered 4 intellectual property objects of the faculty scientists on the application of information technologies in Medicine. For the last 3 years 20 study guides, 185 scientific articles have been published.

The teachers of the Department are involved in the educational process and research. In addition, they hold meetings on career guidance, give subject specific lectures to the teachers from schools, gymnasias, lyceums and colleges in different parts of the region.

Standard 6. Learning resources and student support

Good information educational environment was created in the university. All academic buildings are interconnected in the single corporate intra-university network by long-distance fiber lines.

Educational, guidance and other materials are in open access for the students' independent work. They are placed on the Unified Educational Portal.

More than 90% of the electronic library system content is in open access.

The University has own research library with more than 1 million books of scientific, educational, belles-lettres and foreign literature. The students of the educational programme have an access to electronic multimedia course books on Medical Physics.

Several academic buildings of the University are available for the students with health limitations and for disabled people.

The «alarm button» is available on the University web-site to improve the feedback from students and teachers about the organization of the educational process.

The Laboratory of Medical Physics provided with physical and computerized equipment was opened for training in Medical Physics.

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

The system «Case» was developed and implemented in the University. It allows monitoring the key performance indicators of the university, all its subdivisions and several teachers.

Collection, analysis and use of information are carried out on the basis of the electronic document flow.

The University has 11 information systems: «Applicant», «Department of Treaty Relations», «1C», «Diagnostic, Monitoring and Control System», «Case», «Dean's office», «Cyberthesis», «Doctoral Student», «Irbis 64», «Presidential library», «Portfolio». They contain information about the educational process participants, documented regulations of its review and other documents.

Free access to the information about the programme on the University web-site.

Standard 8. Public information

All basic information about the programme can be found on the web-site of the university and the Faculty of Physics and Technology. There are interviews with the graduates in the section «Gallery of students».

The teachers of the Faculty actively cooperate with the Regional Academic Methodological Association in Physics helping the teachers and developing the system of work with gifted children. Developed paper and electronic publications (brochures) also help to promote work on career guidance.

Information about the teaching staff activities, preparation of the faculty graduates for their further work in healthcare institutions is published in mass media.

Information about the programme for all stakeholders (applicants, students, teachers, employers) is represented in the blog «Programme «Physical Methods and Information Technologies in Medicine».

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

There is the Department of Strategy, Analysis and Monitoring in the University that monitors and assesses the programme in accordance with local normative acts. The programme is adjusted in accordance with the changes in the local normative acts and recommendations of employers (regional healthcare institutions where the students do practice, members of the State Examination Commission).

Monitoring of the programme acquisition is carried out with the help of the information system «Electronic Documents» which allows the teachers to use a 100-point rating system as well as traditional 5-point system.

Standard 10. Cyclical external quality assurance of the educational programmes

The high training level of the graduates is highly appreciated among the employers.

The University has experience of periodic external evaluation of the University as a whole (participation in Russian (Expert RA, Interfax) and world (QS, Webometrics) ratings, certification of QMS), and of certain programmes (state accreditation, public accreditation, employers' assessment of the programmes, Federal Internet Exam in the sphere of Professional Education).

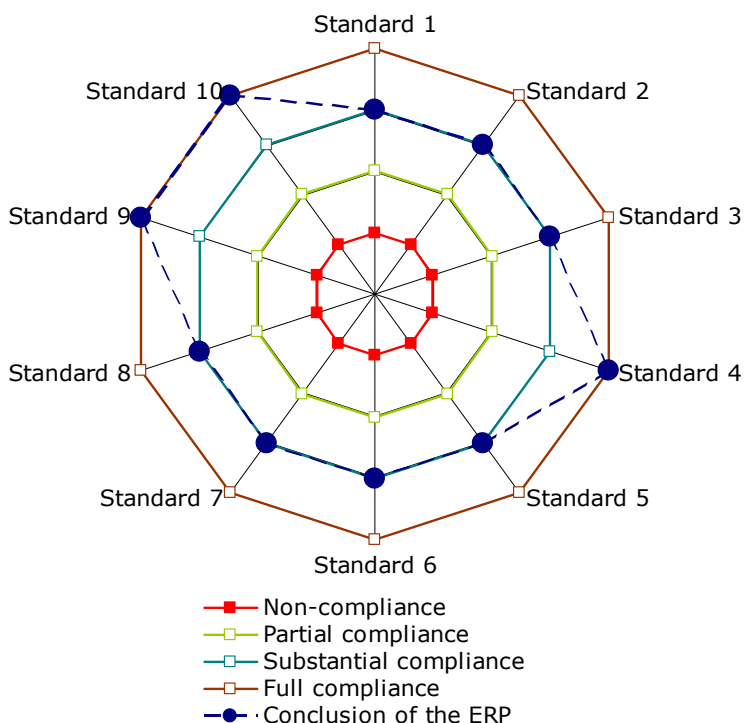
Corrective actions were effectively taken after the external evaluations.

The University is the platform for the international events such as the III International Educational Forum «Altai-Asia 2016», BRICS Youth Assembly Conference and others, that is illustrative of the University possibilities and its external evaluation by stakeholders.

RECOMMENDATIONS

1. The Panel recommends that the University should strategy of the medical cluster development and the roadmap for its implementation.
2. It is recommended to cooperate with research and healthcare institutions to have the possibility of using modern medical equipment for educational purposes.
3. It is necessary to systematically monitor the approved professional standards (considering changes) for taking into account the requirements when developing (improving) the educational programme.
4. It is advisable to carry out internal audit of the development, confirmation and correction procedures of the educational programmes as well as to formalize documented processes.
5. It is recommended to sustain conditions for formation of individual learning paths for master degree students.
6. It is necessary to create conditions for learning foreign languages by the students and teachers.
7. It is advisable to establish the system of statistical accounting and display of information on employment and graduates' career development (the section «Gallery of students») on the University website.
8. It is recommended to provide for the possibility of the staff development outside the University including the sphere of Medical Physics.
9. It is necessary to provide access to the academic buildings for people with disabilities.

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 master's programme «Physical Methods and Information Technologies in Medicine» in the field of study 03.04.02 Physics **substantially** complies 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 educational master's programme « Physical Methods and Information Technologies in Medicine» in the field of study 03.04.02 Physics delivered by the Federal State Budgetary Educational Institution of Higher Education « Altai State University» for the **period of 6 years**.

SCHEDULE OF THE SITE VISIT OF THE EXTERNAL REVIEW PANEL

Time	Activity	Participants	Venue
November 15, Tuesday			
8.45	Arrival at ASU		ASU Main Building, Lenina Pr. 61
09.00 – 11.00	The first meeting of the external review panel		ASU Main Building, Room 518M
11.00 – 12.00	Meeting of the ERP with the University administration and people responsible for accreditation	Rector, Vice-Rectors, people responsible for accreditation, ERP	Room 519M
12.00 – 12.30	Tour of the Main Building (visiting library etc.)	ERP	Library, Information Centre, Scientific Research Institute of Biological Medicine
12.30 – 13.30	Lunch		University Cafe, Dimitrova St. 66
13.30 – 14.00	Tour of the K Building (visiting classrooms, laboratories, etc.)	ERP	Krasnoarmeyskiy Pr. 90 (Rooms 412K, 305K, 209K, 201K, 214K)
14.00 – 14.30	Internal meeting of the ERP	ERP	Krasnoarmeyskiy Pr. 90, Room 214K
14.30 – 15.30	Meeting with Dean, Vice-Deans, Heads of the subdivisions responsible for education quality	Dean, Vice-Deans, Heads of the subdivisions responsible for education quality, ERP	Room 306K
15.30 – 16.00	Work with documents	ERP	Room 214K
16.00 – 17.00	Meeting with Head of the Department	Head of the Department, ERP	Room 312K
17.00 – 17.30	Internal meeting of the ERP	ERP	Room 312K
17.30 – 18.00	Meeting with graduates	Graduates, ERP	Room 214K
18.00 – 18.30	Internal meeting of the ERP	ERP	Room 312K

Time	Activity	Participants	Venue
November 16, Wednesday			
9.45	Arrival at ASU		Krasnoarmeyskiy Pr. 90
10.00 – 11.00	Meeting with teachers	Teachers, ERP	Room 214K
11.00 – 11.30	Internal meeting of the ERP	ERP	Room 312K
11.30 – 12.30	Meeting with students	Students, ERP	Room 214K
12.30 – 13.00	Internal meeting of the ERP	ERP	Room 312K
13.00 – 14.00	Lunch		University Cafe, Dimitrova St. 66
14.00 – 16.30	Work with documents/ Visiting classes (at the wish of the ERP)	ERP	Room 312K
16.30 – 17.30	Meeting with representatives of professional community	Employers, ERP	Room 214K
17.30 – 18.00	Internal meeting of the ERP	ERP	Room 312K
November 17, Thursday			
9.45	Arrival at ASU		ASU Main Building
10.00 – 13.00	Internal meeting of the ERP: discussion of preliminary results of the site visit, preparation of the oral report of the panel	ERP	Room 518M
13.00 – 14.00	Closing meeting of the External Review Panel with the representatives of the University	ERP, University administration, Heads of the Graduate Departments, teachers, students	Room 519M
14.00 – 15.00	Lunch		University Cafe, Dimitrova St. 66
	Departure		