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REPORT

on the results of an independent evaluation of the main professional educational programs of higher education **27.04.03 «System analysis and management**
"State-Financed Educational Institution of the Higher Education of the Moscow region State "University" Dubna"

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REPORT ON THE RESULTS OF AN INDEPENDENT EVALUATION OF THE MAIN EDUCATIONAL PROGRAM

The basic educational program «System analysis and management» is implemented within the direction 27.04.03 «System analysis and management» by the department (faculty) of System Analysis and Management and leads to the award of the master qualification. The program is run by the *director of the Institute of System analysis and management* and by head of the Department of System analysis and management Eugenia N. Cheremisina, Doctor of Technical Sciences, professor and member of Russian Academy of Natural Sciences.

An independent external assessment of the educational program has been conducted by AKKORK experts on the Oct. 25th - December 12th, 2016.

1. CURRENT STATUS AND TRENDS OF DEVELOPMENT OF THE REGIONAL MARKET OF EDUCATIONAL SERVICES IN THIS DIRECTION OF TRAINING

Analysis of the role and place of the program

Graduates of the program are in demand in the region, as evidenced by statistics. According to the expert, this demand is caused by the specifics of the region: the presence in the Dubna of special economic zone (SEZ) with a high concentration of young ambitious IT companies, as well as major research centers such as the Joint Institute for Nuclear Research. The high demand for IT professionals creates a prolific climate for their preparation.

Despite the presence in the vicinity of Moscow, with its huge labor market and the demand for IT professionals, only a few (25%) graduates of the program are employed outside the region. This suggests a high degree of consistency of the program to the needs of participants in the regional labor market and decent remuneration conditions for graduates in the home region.

Analysis of the labor market needs was implemented in three different ways: expert analysis of experts of the analytical center "Education and Career", monitoring of vacancies in the media, assess of the demand for specialists of regional employment service.

Studies show that the demand for graduates of Magistracy of the Department System analysis and management on the labor market is 100%. According to experts, it is caused, on one hand, by the high quality of training IT professionals in institution and, on the other hand, by a small volume of the labor market for such specialists. According to the <http://trudbox.com>, IT professionals are not included in the top ten most demanded workers in the Moscow region.

Direction	Expert assessment	The labor market (vacancies in the media)	Specialists
System analysis and management	100%	100%	78%

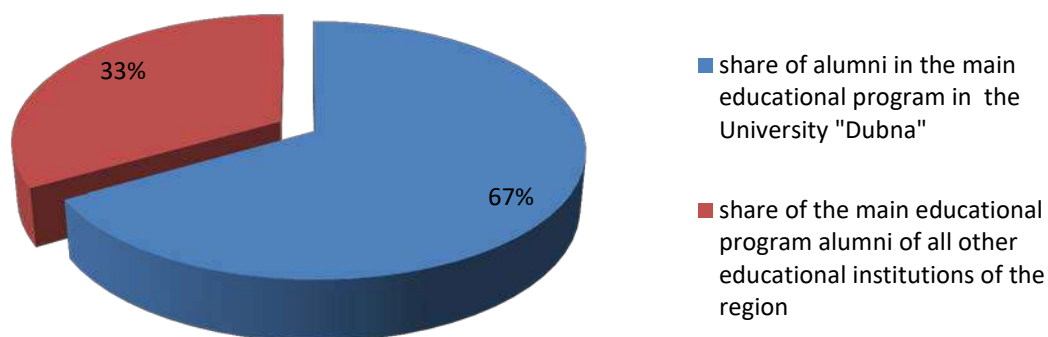
44 people have graduated Magistracy of the «System analysis and management» direction in 2015. There are data showing employment for all graduates.

40 of the 44 people are working, including 36 graduates working on specialty, two graduates are continuing their education in postgraduate school, two are in the Armed Forces of the Russian Federation. 27 graduates out of the total number of employees were employed in Dubna, of which 9 people are employed in various companies- residents of Special Economic Zone "Dubna", in Joint Institute for Nuclear Research, in LLC "Logstrim", etc.; 9 people are working in Moscow.

The preparation of masters in «System analysis and management» direction is implemented in the Moscow region, except the University "Dubna", by the Federal State Autonomous Educational Institution of Higher Professional Education, "Moscow Institute of Physics and Technology (State University)" (MIPT, Dolgoprudny). Class of 2015 totaled 22 people, admission to first year is 32. The University "Dubna" 2015 class of the program totaled 44 people, admission to the first year is 101 (according to the federal portal "Russian Education", www.edu.ru).

As a result of analyzing the role and place of the program and the characteristics of the formation of the regional educational market, and according to data provided by the educational institution, the experts provide a diagram that reflects what percentage of the graduates are represented by this program on the regional labor market.

The role of the University "Dubna" in the formation of the labor market



Analysis of informational indicators provided by the university

The issues of monitoring the demand for graduates are implemented by the analytical center "Education and Career". Information is collected by phone and e-mail.

About 30% of the students of the of Magistracy direction combine training with work on specialty profile.

Following the results of three years, among the main educational program graduates in the direction of «System analysis and management» (magistracy):

- 84% of the graduates were employed on the specialty after 3 months in 2013, and after a year - 91%; of which 86% are working on the specialty; 66% found jobs in the Moscow region and 25% - in other regions;
- 87% of the graduates were employed on the specialty after 3 months in 2014, and after a year - 87%; of which 83% are working on the specialty; 74% found jobs in the Moscow region and 11% - in other regions;
- 91% of the graduates were employed on the specialty after 3 months in 2015, and after a year - 91%; of which 82% are working on the specialty; 68% found jobs in the Moscow region and 23% - in other regions.

The graduates are satisfied with the wage level within 3-5 years.

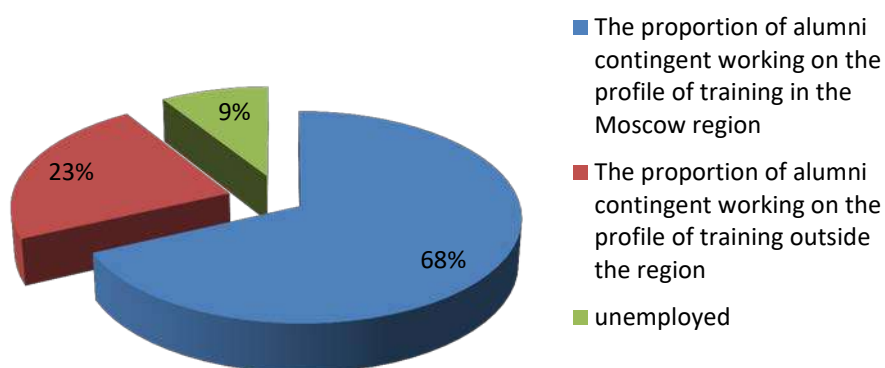
Employers generally appreciate the high quality of training of graduates. Letters with positive feedback on the work of graduates were received of a total of 23 from the following organizations: Scientific and Production Complex "Daedalus", LLC "Rospartner", IBM, Joint Institute for Nuclear Research, LLC "Inter Graphics", LLC "Nordavind Dubna", LLC " Science

and Technology park "Dubna", LLC " Riel Geo Project". At the same time 18% of students have been invited to work on the basis of practice. There is no complaints on graduates.

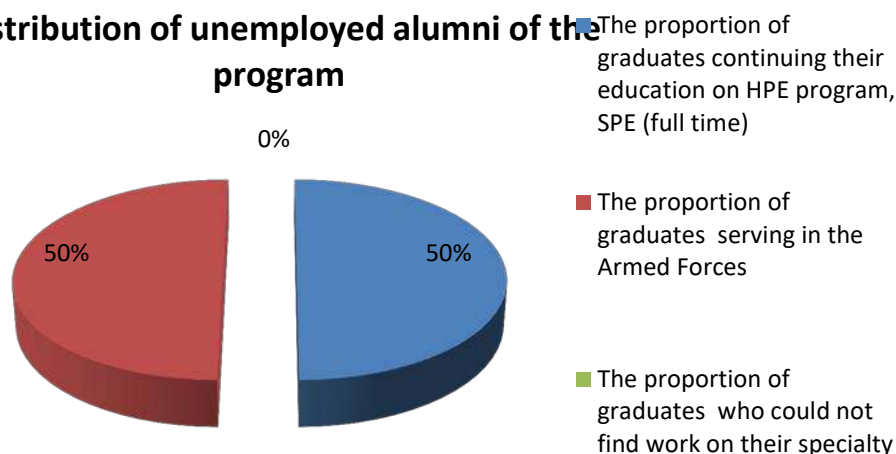
The share of the contingent of students in the framework of the main educational program accepted for studying on magistracy programs who have completed training in the baccalaureate program is 100%, from them more than 90% who have completed baccalaureate program of the University "Dubna".

As a result of self-assessment conducted by the educational institution, there are data presented on the distribution of graduates. Data provided by the institution have been confirmed during the study of the relevant documents.

Distribution of alumni of the program (the labor market)



Distribution of unemployed alumni of the program



2. SUMMARY OF THE PROGRAM

Strengths of the program

Graduates of the program are in demand in the region, as evidenced by statistics. According to the expert, this demand is caused by the specifics of the region: the presence in the Dubna of special economic zone with a high concentration of young ambitious IT companies, as well as major research centers such as the Joint Institute for Nuclear Research. The high demand for IT professionals creates a prolific climate for their preparation.

It should be noted the close relationship of System Analysis and Management Institute (a division of the University "Dubna") with employers and alumni. Many of them are full-time lecturers of the Institute and prepare graduates with the needs of their businesses. Employers participating in the program provide material and technical resources to ensure educational process, offices, laboratories, equipment, software.

The Institute of System Analysis and Management is working on a regular basis on the analysis of regional vacancies in the field of IT in order to clarify the components of professional competencies and corresponding updates of disciplines. All work programs of disciplines are required to attend a negotiation procedure with key partners from the labor market. Every year at least 30% of graduate qualification works are performed within the interests of employers and contain a solution of applied problems.

Implementing of e-learning on the program level is a part of the university strategy on improvement of quality and availability of education. The share of educational programs implemented using the platforms and e-learning tools is 95%.

In the "Dubna" University is formed a skilled scientific and pedagogical staff, which has a high potential and the ability to solve modern problems for the training of qualified personnel. It consists of also highly qualified lecturers of the leading universities of Moscow (Moscow State University, Moscow Engineering Physics Institute, The Moscow State Automobile & Road Technical University, Moscow Institute of Physics and Technology, Moscow Power Engineering Institute, Moscow State Institute of Radio Engineering, Electronics and Automation, Bauman Moscow State Technical University et al.) and leading experts of the Joint Institute for Nuclear Research.

Students and graduates generally appreciate the university, the program and the acquired knowledge that allows us to conclude about the satisfaction of students.

The university has established a center of cloud technologies based on high-performance computing cluster, within which specialized software operates for supporting workflow and automation. System of automated information management "1C: PROF University" is implemented in the University.

The educational process of the Institute of System Analysis and Management uses extensively hardware and software package "Virtual Computer Lab" based on cloud computing technologies. This is one of the most important tools for the preparation of highly skilled IT professionals.

Information transparency of State University "Dubna" is provided by a wide representation in the media, the Internet, social networks.

Students of the University "Dubna" and its branches are provided with different forms of financial support. Great opportunities for quality recreation and sports activities are provided by one of the best sports facilities of Moscow region - a sports complex "Olympus", which regularly organizes cultural and sports events for students.

Weaknesses of the program

As a result of the direct assessment of competencies, the experts have revealed that 20% of the students have shown a low level of formation of competences (coped with less than 50% of the proposed tasks).

The age structure has only 5% of young lecturers (under 30 years) among full-time academic staff.

Personnel reserve of the University is not in use. Over the past year, no reservist has been moved to a higher position.

Despite the constant monitoring of the effectiveness of faculty's work, criteria of complex faculty assessment are not efficient enough for accounting in personnel policy (according to the latest assessment, 100% of contracts are prolonged, including 10% with a change of incentive component).

Work on the implementation of e-portfolio is not yet finished and is at the stage of developing of technical specifications.

Participation of students in the formation of the main educational program and the teaching materials on disciplines and the management of the educational process of students is limited due to the low awareness of the possibility of such participation.

The vast majority of students on the program are graduates of bachelor programs of the University "Dubna". According to expert, the limiting factor is the narrow focus of vocational guidance activities: it is aimed mainly at bachelor students of the University "Dubna".

Recommendations

1. It should be noted a significant (20%) proportion of students who showed the results of a direct assessment of a low level of formation of competences. It is recommended to intensify work to identify problem students in the early stages, and their motivation for improving learning outcomes by strengthening educational and vocational guidance. In exceptional cases, it is recommended to consider the application of the dismissal practice for academic failure.

2. It is recommended to extend financial and moral aspect of motivating of faculty to develop a career in teaching to attract young professionals under the age of 30 years in teaching activity by creating favorable conditions for employment, a competitive level of remuneration (including the additional encouragement of young professionals) and to attract young faculty members to participate in research activities.

3. It is recommended to increase the involvement of students to teaching.

4. It is expedient to explicitly develop a clear and transparent motivation and career model system.

5. It is recommended to use the personnel reserve for the replacement of higher positions when liberation.

6. It is recommended to diversify the performance of complex faculty assessment by expanding the list of indicators, as well as the weighting parameters using a set of weighting factors. It is also recommended to strengthen the importance of the results of a comprehensive assessment when making personnel decisions, as well as in the distribution of fund of incentive payments for faculty.

7. It is recommended to intensify work on the implementation of the electronic portfolio, to complete the technical specifications development in the shortest time and implement it.

8. It is expedient to intensify efforts to take part in competitions for the right to perform R & D projects within government programs and international grants by expanding the field of research, which will increase the cost of research and development work calculated per 1 scientific employee.

9. It is recommended to develop the documents formalizing the procedure of accounting opinions of students in the development of (updating) education program.

10. It is recommended to pay attention to students informing channels about the possibility of participation in the development of the main educational program, the teaching materials and the management of the educational process, to strengthen the work on attracting and motivating graduate students to participate in this work.

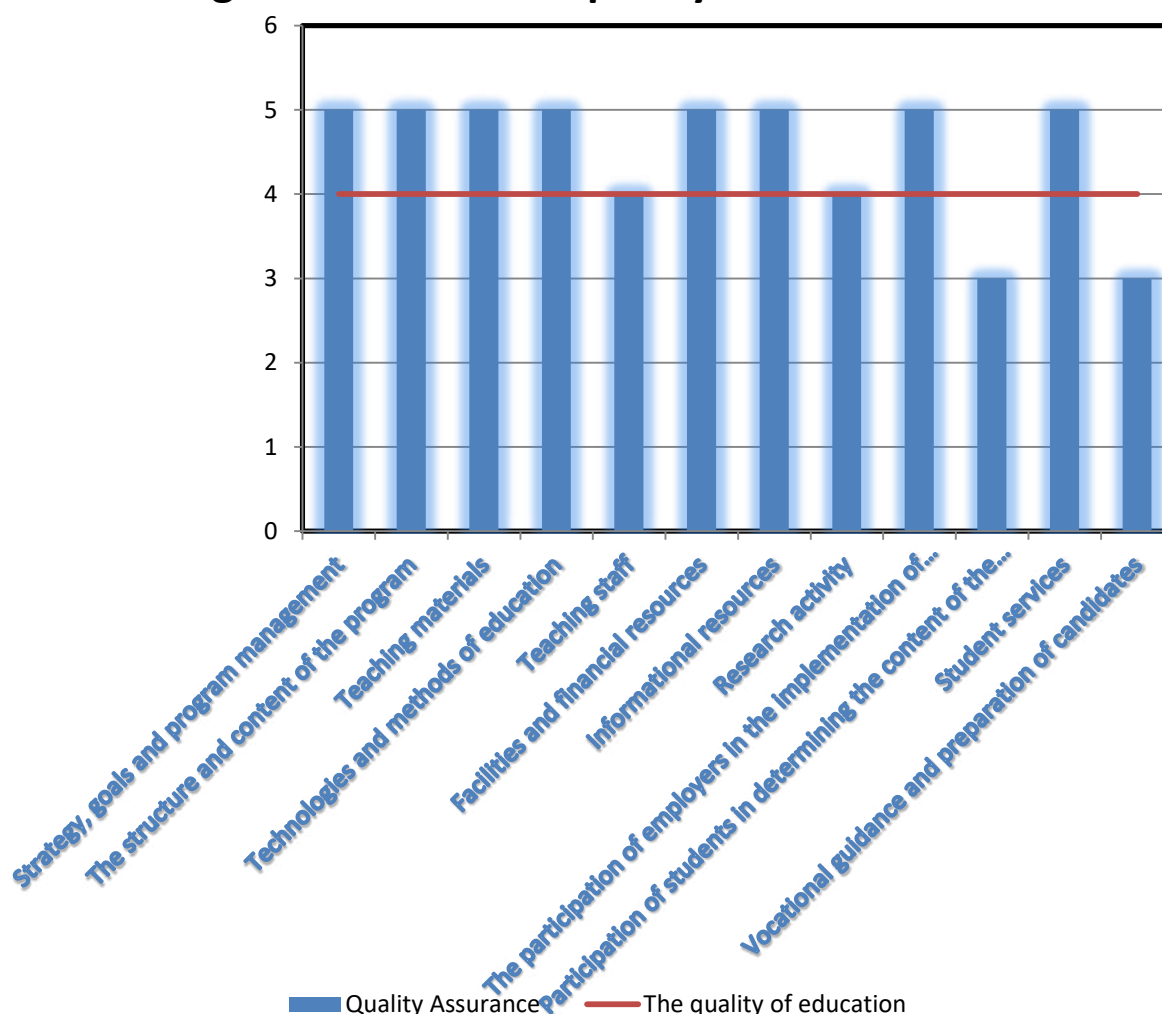
11. It is recommended to develop the documents formalizing the procedure of accounting opinions of students in the development of (updating) education program.

12. It is expedient to increase the number of events for inviting prospective bachelors from other universities. It will, on the one hand, enhance the prestige of the university, and on the other hand, it will increase the number of those wishing to continue their studies at magistracy of university "Dubna".

Assessment Profile for learning outcomes and quality of education guarantees

No	Criterion	Mark
<i>I</i>	Quality of education outcomes	
	1. Demand for graduates of the program on labor market	<i>Excellent</i>
	2. Satisfaction of all customers	<i>Excellent</i>
	3. The results of direct assessment	<i>Satisfactory</i>
<i>II</i>	<i>Quality Assurance:</i>	
	1. Strategy, goals and program management	<i>Excellent</i>
	2. The structure and content of the program	<i>Excellent</i>
	3. Teaching materials	<i>Excellent</i>
	4. Technologies and techniques of educational activities	<i>Excellent</i>
	5. Teaching staff	<i>Good</i>
	6. Physical facilities and financial resources	<i>Excellent</i>
	7. Informational resources	<i>Excellent</i>
	8. Research activities	<i>Good</i>
	9. The participation of employers in the implementation of educational programs	<i>Excellent</i>
	10. Participation of students in determining the content of the program	<i>Satisfactory</i>
	11. Students' services	<i>Excellent</i>
	12. Career guidance and preparation of applicants	<i>Satisfactory</i>

Profile assessment of learning outcomes and guarantees of the quality of education



3. QUALITY OF LEARNING OUTCOMES

Direct assessment of competence by the expert

The direct assessment of competencies of graduates was conducted during the on-site visit. 2st year students (22 persons), representing 27% of the graduating course, participated in the direct assessment.

Measurement and control materials developed by the experts were used during the procedure of direct assessment of alumni.

The experts chosen following competencies for the analysis of the competencies formation:

- the ability to abstract thinking, analysis, synthesis (PC-1);
- the ability to determine the mathematical, natural scientific and technical nature of the technical facility of management problems arising in professional activities, to conduct their qualitative and quantitative analysis (GPC-1);

- the ability to organize the work of the group of performers, decision-making under conditions of spectrum of opinions, to determine the order of execution of works (GPC-5);
- the ability to apply adequate methods of mathematics and systems analysis and decision theory to study the functional problems of management of technical facility on the basis of domestic and international methods development trends, information management and intelligent technologies (PC-1).

When implementing the direct competence assessment procedure, the experts used the following measurement and control materials.

1. Give a definition of the concepts of "system", "systems analysis."
2. What is the purpose of the system analysis? What problems does it solve? What methods and tools are used?
3. What is a simulation? What kind of simulation do you know? Give an example of the use of simulation in the IT business.
4. Give the definition of "information security". What are the methods and means of information security do you know?
5. What encryption techniques do you know. How do they differ? Give examples of algorithms.
6. Describe the principle of operation of the https protocol. What methods of encryption does it use?
7. What problems solves the automated information company management system?
8. You are the head of a small company's IT department. You face the task of implementing an automated information system. Plan implementation process. At what stage you will break it? What are the difficulties you will encounter at every stage and how you plan to overcome them?

As a result of the direct competences assessment, experts have revealed that 20% of the students have shown a sufficient level of formation of competences (coped with 80% of the proposed tasks), 60% of students have shown an acceptable level (coped with 50-75% of the proposed tasks), and 20% have shown a low level of formation of competences (coped with less than 50% of the proposed tasks).

Level Students ratio	Sufficient level (have managed with 80% of the proposed tasks)	Acceptable level (the percentage of solved tasks from 50 to 79%)	Low level (percentage of solved tasks is less than or equal to 49%)
100%	20%	60%	20%

In assessing the quality of education, experts have acquainted with 8 graduate qualification work, representing 18% of the graduate works of the last year in this area.

The following table provides a selective analysis of graduate qualification works viewed.

No	Student	Topics of graduate qualification work	Supervisor	Mark
1.	Marina V. Gulina	GIS Technology of the choice of the solar power location	prof., Doctor of Technical Sciences, Spivak L.F.	excellent
2.	Vitaliy I.	Software development for strapdown	associate prof.,	excellent

	Mironov	inertial navigation system	Ph.D. in Physical and Math Sciences, Averkin A.N.	
3.	Daria I. Pryakhina	Simulation of distributed data management process for major projects	prof., Doctor of Technical Sciences, Koren'kov V.V.	excellent

The experts have concluded that all chosen graduate qualification work correspond to all the requirements stated below.

GRADUATE QUALIFICATION WORKS

No	Objects of assessment	Comments of the expert
1.	Subject of graduate qualification work corresponds to the direction of training and modern level of science, technology and (or) software technology.	relevant
2.	Tasks and contents of graduate qualification work are aimed at confirmation of graduate competences.	relevant
3.	Utilization rate of materials collected or obtained during the passage of pre-degree practice and implementation of course papers in the graduate qualification work.	relevant
4.	Subject of graduate qualification work is defined by demands of industrial organizations and tasks of experimental activities solved by faculty of the institution.	relevant
5.	The results of graduate qualification work find practical application in the workplace.	relevant
6.	Utilization rate of the results of research activities of the department, faculty, and third-party research and production and / or research organizations when performing independent research parts in the graduate qualification work.	relevant

Evaluation: good

Recommendations

According to the analysis of quality of student learning outcomes, it is possible to conclude that there is sufficiently high quality of training of graduates, which is confirmed by quantitative estimates for all criteria of quality assessment:

- The demand for alumni labor market - excellent;
- Satisfaction of all consumers - excellent;
- The results of direct assessment - satisfying.

Graduates of the program are in demand in the region, as evidenced by statistics. According to the expert, this demand is caused by the specifics of the region: the presence in the

Dubna of special economic zone with a high concentration of young ambitious IT companies, as well as major research centers such as the Joint Institute for Nuclear Research. The high demand for IT professionals creates a prolific climate for their preparation.

It should be noted the close relationship of System Analysis and Management Institute (a division of the University "Dubna") with employers and alumni. Many of them are full-time lecturers of the Institute and prepare graduates with the needs of their businesses. Employers participating in the program provide material and technical resources to ensure educational process, offices, laboratories, equipment, software.

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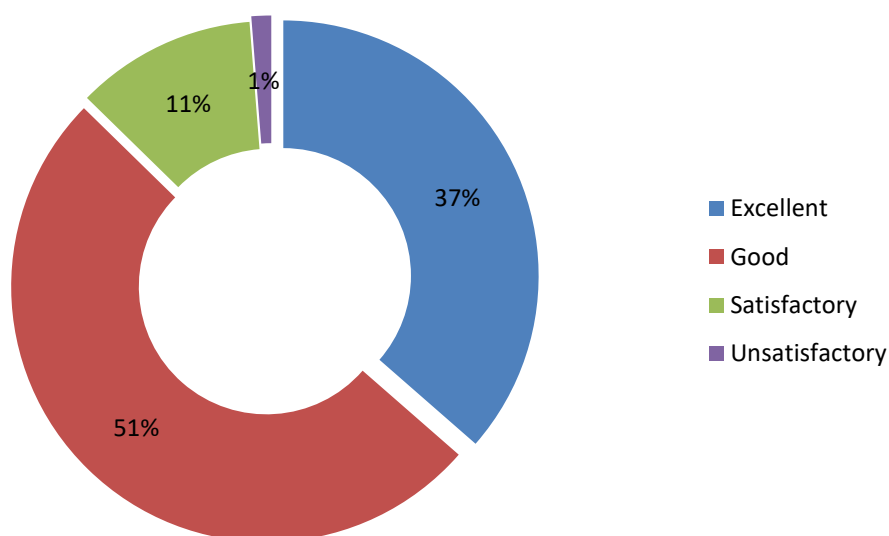
Conducted random analysis of graduate qualification works showed the high quality of their implementation. According to analysis' results, experts concluded that the examined graduate qualification works generally correspond to the all considered requirements.

It should be noted a significant (20%) proportion of students who showed the results of a direct assessment of a low level of formation of competences. It is recommended to intensify work to identify problem students in the early stages and to motivate them for improving learning outcomes.

Additional information

As a result of questioning of students, the data were represented by educational institution. These data have been verified by the experts during the full-time visit and were confirmed by the experts as a result of full-time visit.

Education quality assessment of students as a whole



4. QUALITY ASSURANCE OF EDUCATION

4.1. Strategy, goals and program management

Evaluation of criteria: EXCELLENT

Since early 2013, the University is a member of the development of education programs of the Moscow Region for 2013-2018. The basis of the development of education programs is the State program of the Russian Federation "Development of Education" for 2013-2020. In this regard, approved the strategic goals in the field of education quality were presented and approved on the Academic Board of the University in April, 2013. At the same time, the relevant programs of the development of departments and faculties (of the Institute) are developed and implemented. The presence of such documents is a prerequisite for the elections for the posts of deans (Director of the Institute) and heads of departments.

Academic Center of competence IBM in the design of virtual enterprises, Innovative Information Technology Transfer Center (Russian Research Institute of geosystems), Center for geolocation and satellite monitoring ("Raduga"), Center for prototyping of the University "Dubna" (jointly with SEZ "Dubna"), a business incubator are working in the educational institution at the level of implementation of the program.

Departments of the Institute of System Analysis and Management are available in enterprises that are major consumers of graduates: Department of distributed information systems - in Joint Institute for Nuclear Research, Department of Information Systems in environmental management- in the Russian Research Institute of geosystems

Notes

Reports on the implementation of development of the program strategy for the last 5 years are not submitted in explicit form.

Recommendations

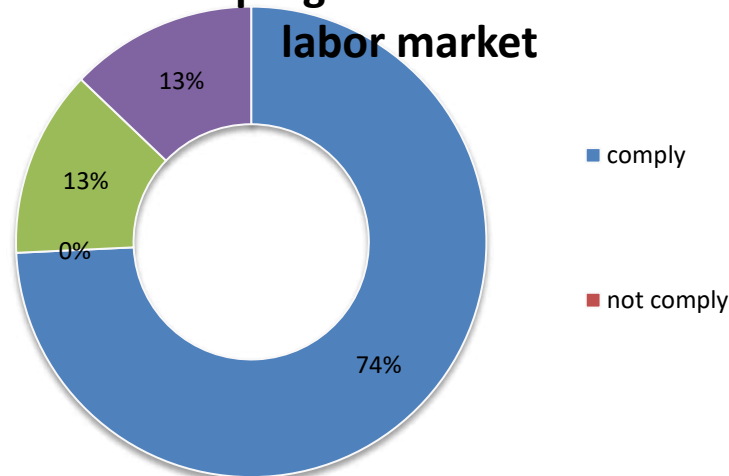
It is recommended to explicitly formulate a strategy for the development of the program strategy, to conduct planning for its implementation on a regular basis, to monitor the implementation of these measures.

Additional information

During the full-time visit, interviews with employers have been conducted, which resulted in the chart.

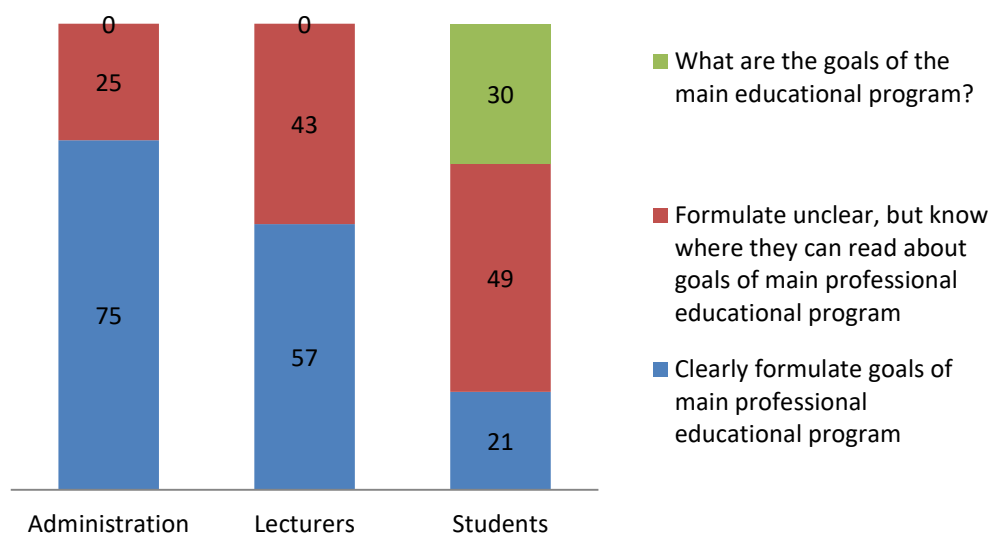
The data presented in the chart allow the expertsto conclude that the objectives of the educational programs meet the needs of the labor market.

Compliance the objectives of the main educational program with demands of the labor market



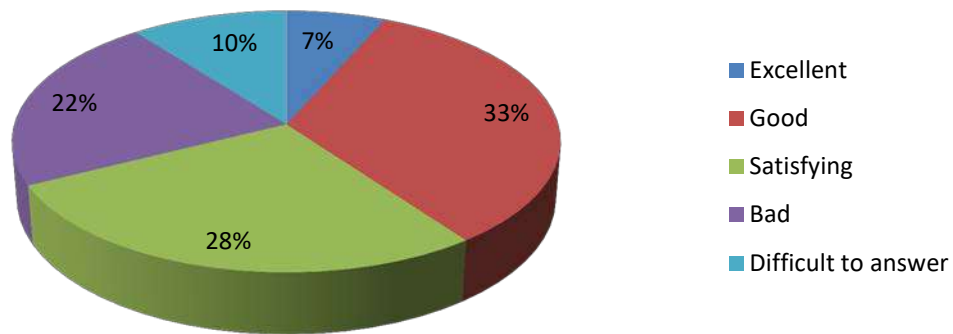
During the full-time visit, the experts conducted a survey (interviews) of students, faculty and staff, and obtained data that allow to conclude that the faculty and staff know about the goals of the main professional educational program, while a quarter of the students does not know what the goals of the main educational program are.

Awareness characteristics of goals of main professional educational program

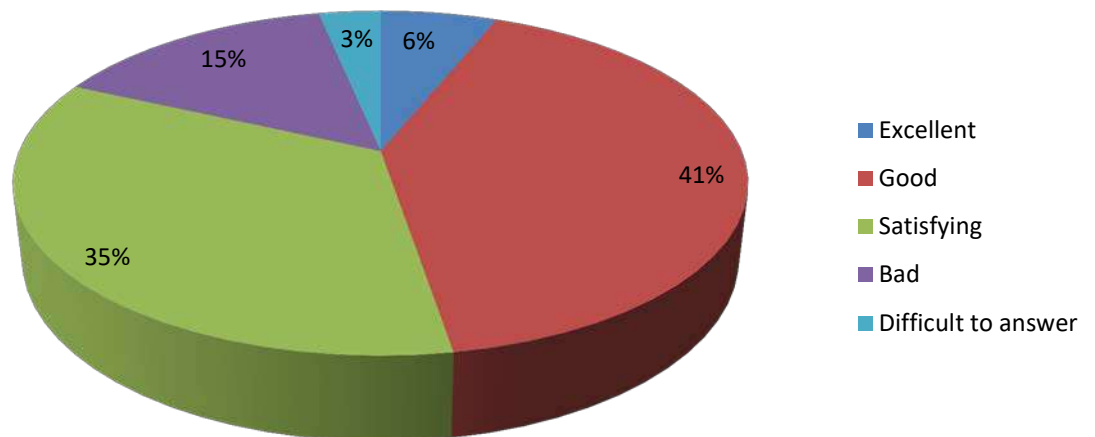


According to the results of the self-assessment, the educational institution presented data on the satisfaction professors with personnel policy and the current motivation system.

Satisfaction with the personnel policy



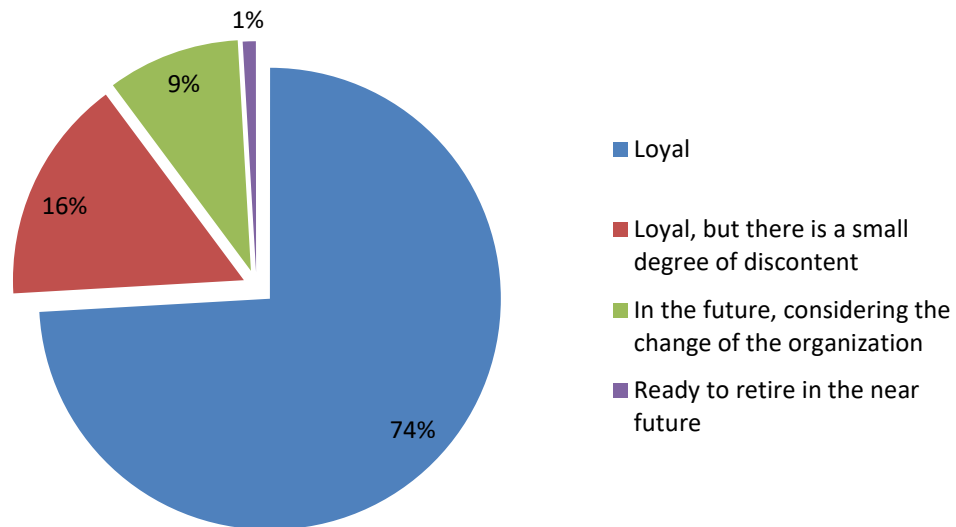
Satisfaction with the current motivation system



During the full-time visit, professors involved in the implementation of the program were interviewed. Interviewing results are presented in the diagram "The level of employee loyalty."

According to the results of data analysis charts, experts conclude sufficiently high satisfaction faculty with personnel policy and motivation system, and high loyalty to the Institute of System Analysis and Management.

The level of employee loyalty



4.2. The structure and content of the program

Evaluation of criteria: Excellent

Strengths of the program

The University "Dubna" has developed a technique that allows to detect the level of employers' satisfaction with the public examination of the graduate competency model developed at the University.

Program of disciplines are regularly reviewed for compliance with the expected outcomes of learning and knowledge, skills, possessions specified in the description of labor functions of professional standards.

The Institute of System Analysis and Management conducts on a regular basis the work on the analysis of regional IT vacancies in order to clarify the components of professional competencies and corresponding updates of disciplines.

Every year at least 30% of graduate qualification works are performed in the interests of employers and provide a solution of applied problems.

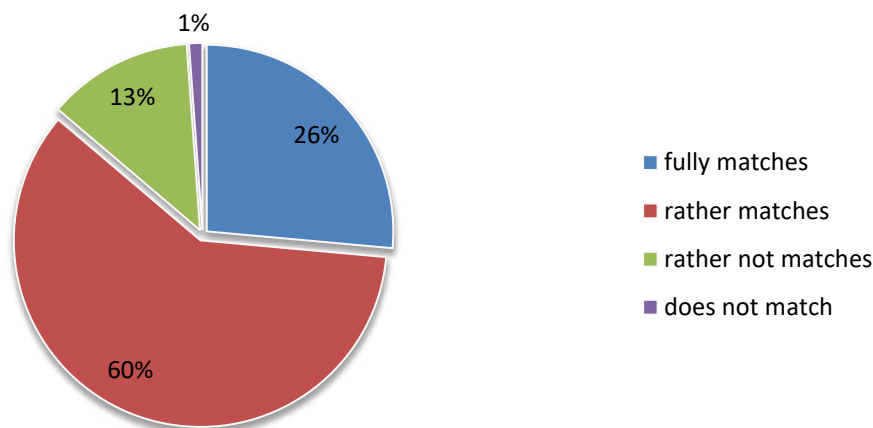
Recommendations

It is recommended to analyze the compliance of structure of the program with other institution practices, which, according to the University "Dubna", are the best in the field of implementation of the program.

Additional information

the full-time visit, the experts conducted meetings with the students of the program being evaluated. One of the issues discussed is matching the structure and content of the program to expectations of immediate consumer programs - students. The data collected on the basis of interviewing are presented in the chart and allow the experts draw a conclusion about a sufficiently high level of confirmation by students (more than 85% of respondents) of compliance with the structure and content of their expectations of the educational program.

Matching the structure and content of the main educational program to expectations of students



4.3. *Teaching materials*

Evaluation of criteria: Excellent

Strenghts of the program

All working programs of disciplines are required to attend a negotiation procedure with key partners from the labor market.

The University developed and approved standard teaching materials of discipline regulating its composition and structure, the content of individual elements, didactic requirements, the procedure for the development and organization of the teaching materials examination.

At least 2 representatives of employers on the profile developed the basic educational program are included in the methodological commissions in developing the main program of higher education at the design stage. The proportion of curricula (modules) disciplines and practices agreed with external representatives of the scientific community is 100%.

Recommendations

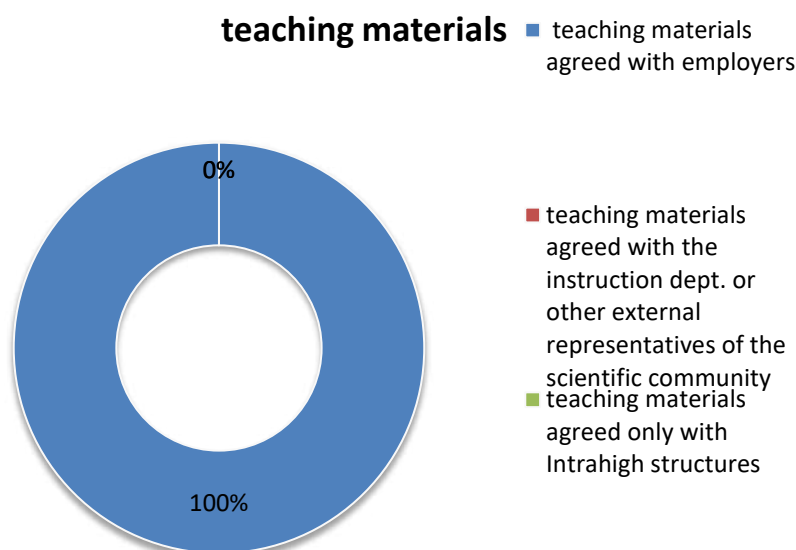
Most students are not aware of the opportunities to participate in the development and modernization of the teaching materials and measurement and control materials. In this regard, experts recommend to intensify efforts to inform students and actively involve students in the design and updating of teaching materials.

The use of teaching materials developed within the program (textbooks, manuals, methodical, workshops, lists of the instrument base, teaching methods, and others.) by other Russian institution implementing similar programs, is limited by teaching materials issued at the federal level (not indicated specifically). It is recommended to intensify efforts to cooperate with other Russian institution, implementing similar programs in the part of the joint development and sharing of teaching materials.

Additional information

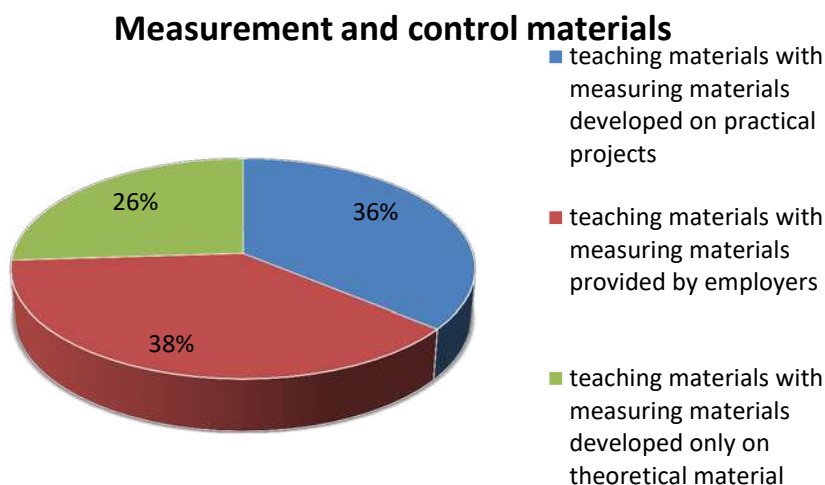
During the full-time visit, the experts familiarized with the teaching materials developed in the educational institution. As a result of the study of 16 the teaching materials, following diagram has been compiled.

These data allow the experts to conclude that 100% of teaching materials are agreed with employers and external representatives of the scientific community.



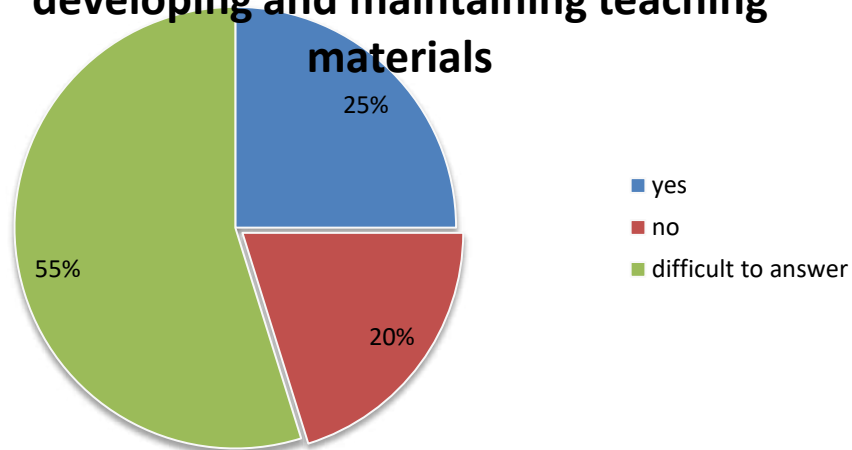
During the full-time visit, the experts analyzed the measurement and control materials, which are used in the educational institution for the ongoing monitoring of progress. Data for the analysis of test materials are shown in the following chart.

It is allowed to make an expert conclusion on prevalence of measuring materials developed on practical projects.



By results of the questionnaire represented by the educational institution, the results of which were confirmed during the full-time visit, most students found it difficult to answer the question, does their opinion is taken into account when developing and updating teaching materials. In this regard, experts recommend to actively involve students in the design and updating of teaching materials.

Accounting students opinion when developing and maintaining teaching materials



4.4. Technologies and techniques of educational activities

Evaluation of criteria: Excellent

Strenghts of the program

Implementation of e-learning at the program level is part of the university strategy on improvement of quality and accessibility of education.

The share of educational programs implemented using the platforms and e-learning tools is 95%. The level of development of e-learning in the university allows the use of program-level learning new techniques to improve the quality and accessibility of education, such as techniques of distributed seminars and group activities; education and training in the workplace on the production and situational case studies; organization of training by electronic repositories; the formation of individual learning paths.

Recommendations

Share of interactive sessions is 16%. It is recommended to significantly increase the share of activities in an interactive form.

Additional information

During the full-time visit, the experts have visited the study, which analysis is presented below.

Name of lecturer: Mikhail A. Belov

Group / Specialty: 6012 / System analysis and management

1. Discipline / module: Design and development of corporate information system

2. Type of training

☐ lecture

☐ seminar

☐ laboratory work

☒ practice

☐ integrated lesson _____

☐ other _____

3. **Lesson Focus:** Building a failover cluster Hyper-V servers

4. **The purpose of class:** development of skills building of failover server infrastructures.

5. **The aims of the class:** working out the settings of virtual servers to be included in the failover cluster.

6. **Facilities:** computer class with terminal access to the virtual computer lab.

7. **Specify:**

No	The knowledge and skills which are planned to generate in class and competences, which affect the formation of the knowledge, and skills (must be announced by lecturer)	The forms, tools, methods and techniques used for the formation of competence in class
1.	Knowledge of architecture and components of corporate information systems and high availability networking (GPC-1, GPC-2, PC-2, PC-11)	Oral survey, homework checking, practical tasks in class
2.	Application of methods of design and development of information systems for solving a wide range of applied problems in various fields (GPC-1, GPC-2, PC-2, PC-11)	Oral survey, homework checking, practical tasks in class
3.	Mastering of software, technology and methods of development of corporate information systems on the example of Microsoft Hyper-V, FreeNAS (GPC-1, GPC-2, PC-2, PC-11)	Oral survey, homework checking, practical tasks in class

ASSESSMENT OF A LECTURER

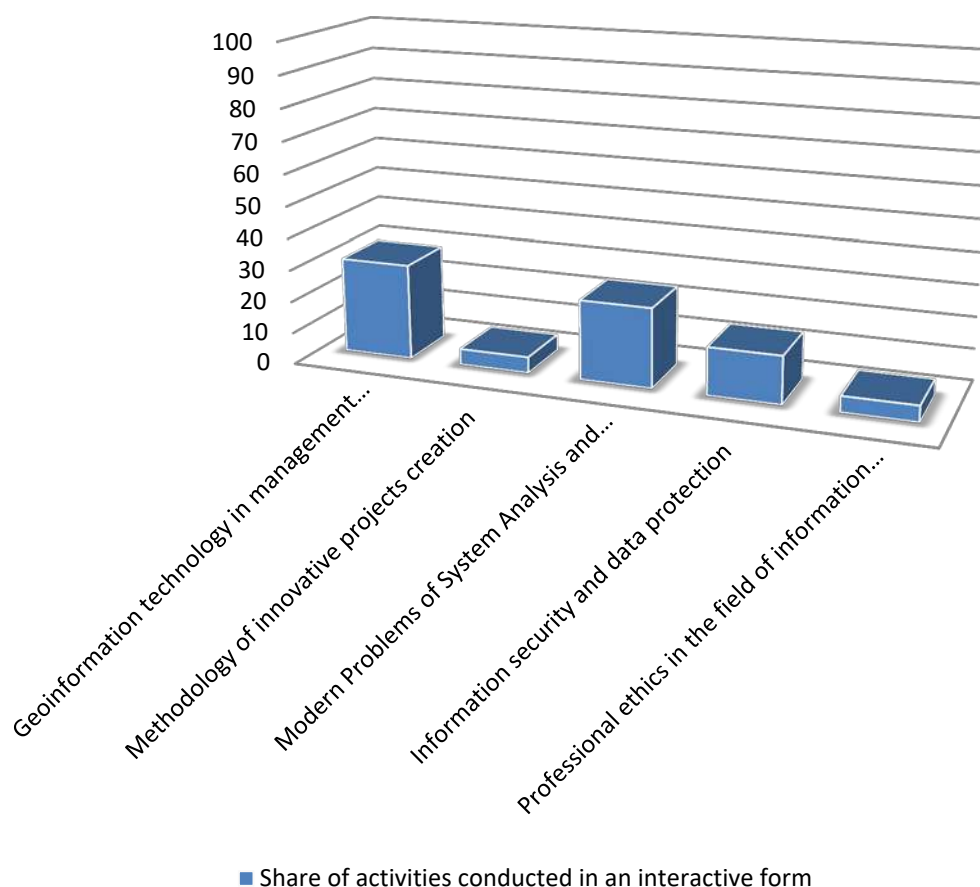
No	Criteria of analysis	Indicators	Mark (0,1,2)
1.	Compliance with lesson's regulations	Timely start and end of lesson, balanced time of sections.	2
2.	Organization	Greeting. Informing about topics and target (connection between target and evolving competences).	2
3.	Motivating students for the upcoming activities	Indication of urgency, of formed professional and / or social and personal competencies.	2
4.	The psychological climate in the classroom	Presence of a positive emotional interaction between lecturer and students; mutual goodwill and audience participation.	2
5.	The quality of presentation	Structured material; clarity of designations of current tasks; consistency and availability of presentation; adaptation presentation to the specific of the audience; examples of relevant facts.	2
6.	Compliance with the	Compare with study programs of the disciplines	2

	content of the course program	(teaching materials).	
7.	The use of visual aids	Textbook, workshop handouts, tables, figures, etc.	1
8.	Oratory	Audibility, intelligibility, euphony, literacy, rate of speech; facial expressions, gestures, pantomime; emotional intensity performances.	2
9.	Sensitivity to the audience	The ability to react to changes in the perception of the audience.	2
10.	Correctness to students		2
11.	Methods of regulation of attention and behavior	Increasing the interest among the audience (the original examples, humor, rhetorical devices etc.); Involving the audience in a dialogue, in the process of performing tasks, etc. But do not: open call to the attention of the audience; demonstration of disapproval; psychological pressure, blackmail.	2
12.	Feedback during the lecture	Control of material learning	2
13.	Summing up (organization of reflection)	Organization of reflection in which students are actively discussing the results	2
14.	Image	Compliance with corporate identity, presentable, charisma	2
15.	Total		27
16.	Notes and expert's suggestions. The study was conducted at a high level in accordance with the content of the course program and compliance with regulations. Study subject is relevant, and formed competences are demanded in the labor market. It is recommended to extend the use of visual aids, such as multimedia presentations.		

As a result of analysis of desk review of self-assessment, curriculum and class schedules analysis, the experts determined that the Percentage of classes conducting in an interactive way for the whole program is 16%. During on-site visit, teaching materials of five subjects were studied. Data on these classes conducting in an interactive way in the context of the teaching materials studied earlier are presented below. On the basis of these, the experts conclude that there is various forms of employment in the educational process, but the share of activities in an interactive form is low, it is recommended to increase it.

The implementation of appropriate educational technology is reflected in the work programs of disciplines.

Share of activities conducted in an interactive form



4.5. Teaching staff

Evaluation of criteria: good

Strengths of the program

The “Dubna” University formed skilled teaching staff, which possess a high potential and the ability to solve up-to-date problems concerning the training of qualified personnel. According to the teaching structure, the university also employs highly qualified professors of the leading universities of Moscow (Moscow State University, Moscow Engineering Physics Institute, Moscow Automobile and Road Construction State Technical University (MADI), Moscow Institute of Physics and Technology (MIPT), Moscow Power Engineering Institute (MPEI), Federal State Budget Educational Institution of Higher Education “Moscow Technological University”, Bauman Moscow State Technical University (BMSTU), etc.) and leading specialists of the Joint Institute for Nuclear Research (JINR).

Professors and teachers implementing the program are regularly invited to another educational institution for reading courses, conducting different workshops and managing the graduate qualification works.

Forty people from among the full-time faculty members were awarded the State Prize and the Prize of the Government of the Moscow region for outstanding achievements in the field of Education and Science.

Also there were developed the criteria (ranking score) and regulations on the ranking of departments, faculties and the Institute of System Analysis and Management of the “Dubna” University, the basis for which was laid by the main (accreditation) and additional indicators that

are of great importance for the university. The ranking score is a direct tool for management decisions.

The opinion of the staff is taken into account during the development of policies, strategies and plans of the university.

The teaching faculty is generally satisfied with the current personnel policy and motivation system.

Recommendations

Regarding the age structure of the full-time teaching staff, the amount of young teachers (under 30 years) account for only 5%. It is recommended to extend financial and moral aspect of the motivation of the staff to develop their career in teaching in order to attract young professionals under the age of 30 years to the teaching profession.

Personnel reserve of the University is out of use. There were no reservists that have been moved to a higher position over the past year. It is recommended to use the personnel reserve in order to replace higher positions in case of vacation of a position.

Criteria of the comprehensive assessment of faculty members are not effective enough for accounting in personnel policy (based on the results of the latest assessment, 100% of contracts were prolonged, including 10% with a change of motivational component). It is recommended to diversify the performance of the comprehensive assessment of faculty members by expanding the list of indicators, as well as the assessment parameters using a set of weighting factors.

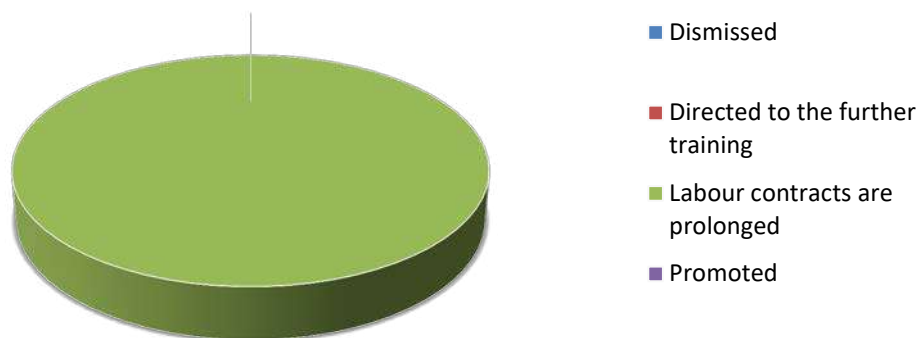
There is a deficiency of the teaching staff that has certificates of compliance with requirements of professional industry standards and qualification frameworks. It is recommended to continue to increase the proportion of the teaching staff that possesses certificates of compliance with requirements of professional industry standards and qualification frameworks.

Additional information

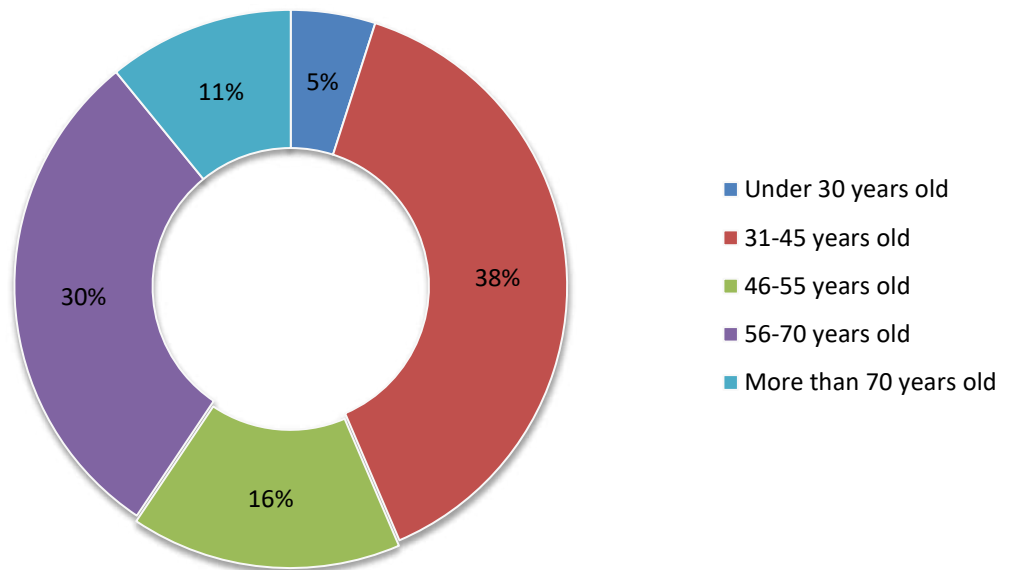
Analyzing the facts that were stated by the educational institution in the self-assessment report, the experts concluded that the data are relevant and reliable. The results of the comprehensive assessment of faculty members (at last year end) and the age structure of the teaching faculty participating in the program are presented in the following charts.

As a result of the analysis of the data submitted, the experts conclude on a high scientific and pedagogical potential of the teaching staff and recommend the leaders of the program to strengthen the work on attracting and training young and high-potential teachers:

According to the comprehensive assessment of faculty members within the main educational program



Age of full-time teaching staff



4.6. *Logistical and financial resources of the program*

Evaluation of criteria: Excellent

Strengths of the program

Logistical resources of the program allow to implement e-learning programs in the educational process as well as to improve the mechanisms for its use.

Resident companies of a special economic zone of technology-innovative type “Dubna” as well as the leading research and industrial organizations of the city and the region, completed with modern equipment and devices to the extent that is necessary for the formation of professional competencies, are considered to be the basis for practice.

The “Dubna” University created the conditions for the training of disabled people.

The financial resources of the program allow to acquire, maintain and operate the logistical base and the equipment that is necessary for the implementation of the program due to budgetary and extra-budgetary funds.

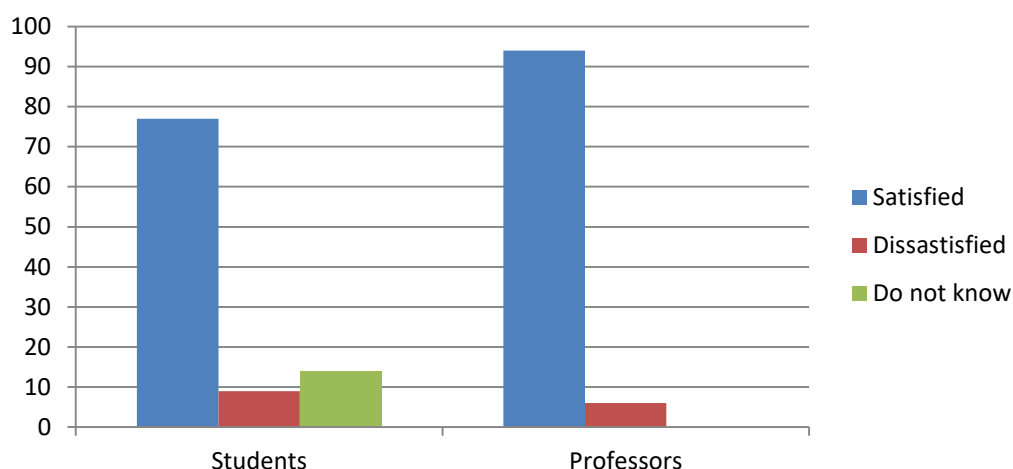
Recommendations

The processes aimed at obtaining additional funding for the program are not formalized. There is no action plan, no specific examples of activities and their results. It is recommended to formalize these processes as well as to develop action plans on an ongoing basis in order to attract financing and to monitor their implementation.

Additional information

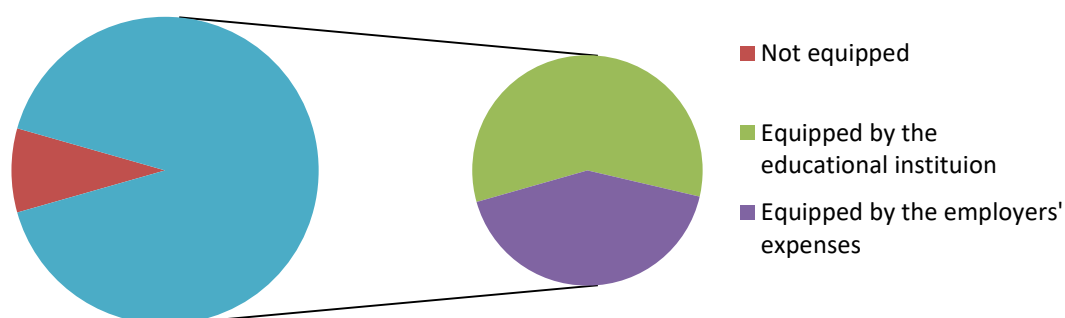
During the on-site visit the experts conducted interviews with students and teachers participating in the program on satisfaction of the quality of extensive classroom facilities. The findings are presented in the following chart and allow experts to conclude that the majority of both students and teachers believe that the environment at the university is favorable for learning.

Satisfaction with the quality of classrooms, laboratories and departments, funds and the reading room of the library



During the on-site visit to an educational institution, the expert team examined the logistical base. The details on the laboratories equipped with modern devices and equipment are below. According to these data it is possible to conclude that the laboratories are almost completely equipped with modern instruments and devices and the active participation of the social partners (Joint Institute for Nuclear Research, All-Russian Research Institute of Geological, Geophysical and Geochemical Systems, IBM, Satellite Communications Center) in this field are worth mentioning.

Laboratory equipment



4.7. Program's information resources

Evaluation of criteria: Excellent

Strengths of the program

The academic buildings of the campus of the University have a high-speed data transfer. It is a network with the capacity of the backbone of the 10 Gbit/s.

The university established a center cloud technology based on high-performance computing cluster within which specialized software support document flow and automation operates. The system of the automated information management under the name “1C: PROF University” is implemented in the University.

The educational process of the Institute of System Analysis and Management widely uses hardware and software package “Virtual Computer Lab” based on cloud computing technologies. This is one of the most important tools for the preparation of highly skilled IT professionals.

The information transparency of the “Dubna” University is provided with the help of a wide representation in the media, the Internet and social networks.

Recommendations: none

The work on implementation of e-portfolio is at the stage of developing of technical specifications.

4.8. Research activity

Evaluation of criteria: Good

Strengths of the program

At least 10% of the students of the total number of the performers of the work are involved in the implementation of the R&D. The process of involvement and participation of students in carrying out research begins with the orientation research workshops in which students of Master's program are introduced to the subject of research of the Institute of System Analysis and Management. The task for graduate qualification work is formulated in the context of the theme selected by the student of the research direction.

There are seven scientific student clubs run by the professors (heads of departments) in the Institute of System Analysis and Management.

Recommendations

It makes the most sense to enable the work on participating in competitions for the right to perform research and development activities in government programs and international grants by expanding the field of research, which will increase the cost of R&D work based on one academic employee.

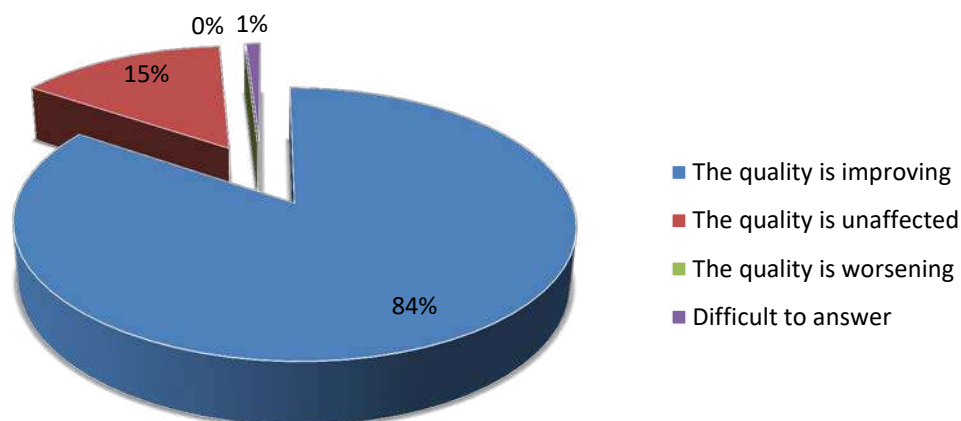
There are no patents and certificates of compliance of the results of research with the Russian and international quality standards. Within the total amount of research activity, it is recommended to increase the share of patents and certificates of compliance of the results of research with the Russian (Russian National Standard) and international (ISO) quality standards.

There are no students who receive additional employers scholarships within the program. As for other categories of additional scholarships, the data is not submitted. It is recommended to intensify the work on information and motivation of the students in order to participate in competitions for grants / scholarships from employers.

Additional information

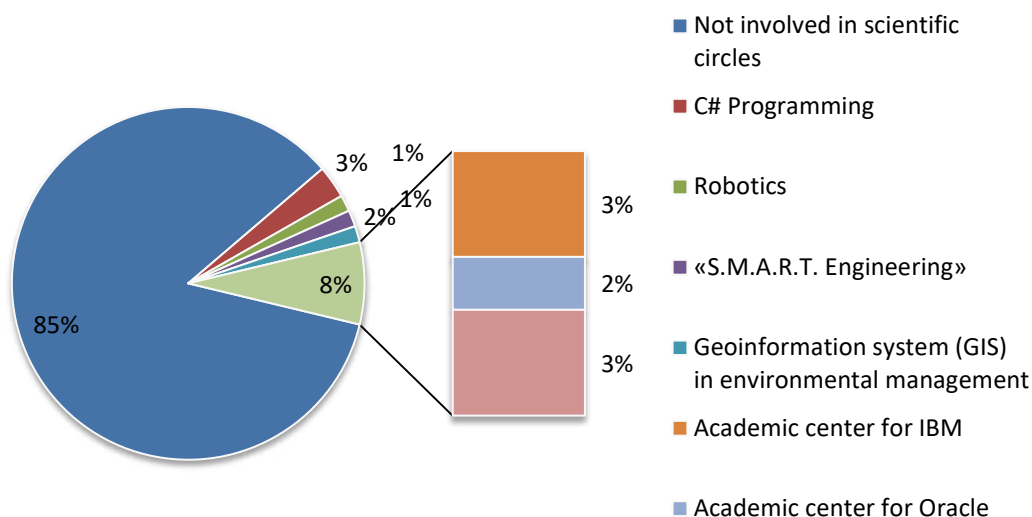
The information on the results of monitoring students' opinions about “The impact of research activity on the quality of education” was not provided. The diagram shows the results obtained by the experts during the on-site visit. It is possible to draw the conclusions about students' understanding of the impact of research and their results on the quality of education.

Results of the monitoring students' opinion concerning the impact of research activity and its results on the quality of education



Employment of students in scientific circles has been analyzed. There are 6 scientific student clubs in the University: C# Programming, Robotics, “S.M.A.R.T. Engineering”, geoinformation system (GIS) in environmental management, Academic Centre for IBM Academic center for Oracle, virtual lab, GRID-technologies. The main purpose of the organization of science club is involvement of students in research and development. 15% of the total number of students attends scientific circles on a regular basis. According to the results of work in scientific circles, students are involved in the research activity, they publish scientific papers in Russian and foreign periodicals.

Employment of students in scientific circles



4.9. Participation of employers in program implementation

Evaluation of criteria: Excellent

Strengths of the program

The “Dubna” University is working closely with major scientific and industrial enterprises of Moscow Region and Russia, actively creates basic departments and teaching and research units, aimed at training highly qualified specialists, the implementation of joint research and development, the attraction of students to scientific activity. 30% of the representatives of the employers form the structure of the government evaluation committees.

Employers participating in the program provide logistical resources to ensure the educational process, offices, laboratories, equipment and software.

Employers contribute to the employment of graduates of the program through the conclusion of targeted training agreements, the target enrollment, invitation to work after practice, the referees following the results of the graduate qualification work defense.

Recommendations

To improve the practice-oriented educational program, it makes the most sense to take greater account of the views of employers as a lack of competence formation of graduates, so the introduction of competencies in the main educational program upon their request. It is recommended not only to receive feedback from employers about the quality of learning outcomes, but also to carry out the analysis of the dynamics of satisfaction with the results of the employers’ use of this feedback during the modernization of main educational program and teaching materials.

Additional information

The self-assessment report of educational institution provides information about the results of the survey of employers in terms of their satisfaction with the quality of training of graduates. This diagram illustrates the data confirmed by the experts during the interviews with employers and relevant to the results of self-assessment.

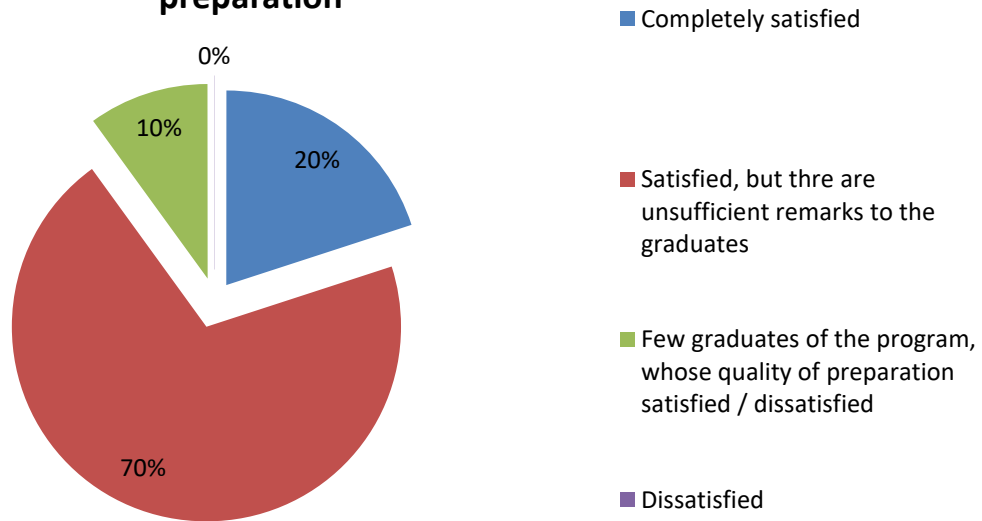
At the same time, employers indicated that graduates have some problems with the following competences:

PC-3: the ability to develop and implement projects according to the systems analysis of complex technical systems, plans on informatization of the enterprise and divisions based on modern information technologies (Web- and CALS- technologies);

PC-8: the ability to organize work and manage a team of hardware and/or software information and automated systems developers.

This indicates a generally high degree of compliance of graduates’ competencies with the requirements of employers and it is recommended to continue working at the same high level.

Employers' satisfaction with the quality of students' preparation



4.10. Participation of students in defining the program's content

Evaluation of criteria: Satisfactory

Strengths of the program

Students take part in content defining of the program by analyzing the results of surveys and questionnaires, as well as through the involvement of students to participate in student government bodies, scientific circles. Director of the Institute of System Analysis and Management holds conversations with the students on a weekly basis., discussing their problems and solutions.

Students are given the opportunity to assess the quality of teaching process by means of electronic form questionnaire under the heading "The teaching quality of discipline" on the university website. Each year, students have the opportunity to assess the quality of education in general by participating in the opinion poll.

Recommendations:

It is recommended to develop the documents formalizing the procedure of taking into account the views of students in the design (update) of education program.

It is recommended to consider the channels of informing students about opportunities to participate in the development of the main educational program, the teaching materials and the management of the educational process.

It is recommended to monitor the students' participation in the ongoing public events held by representatives of the business community and employers.

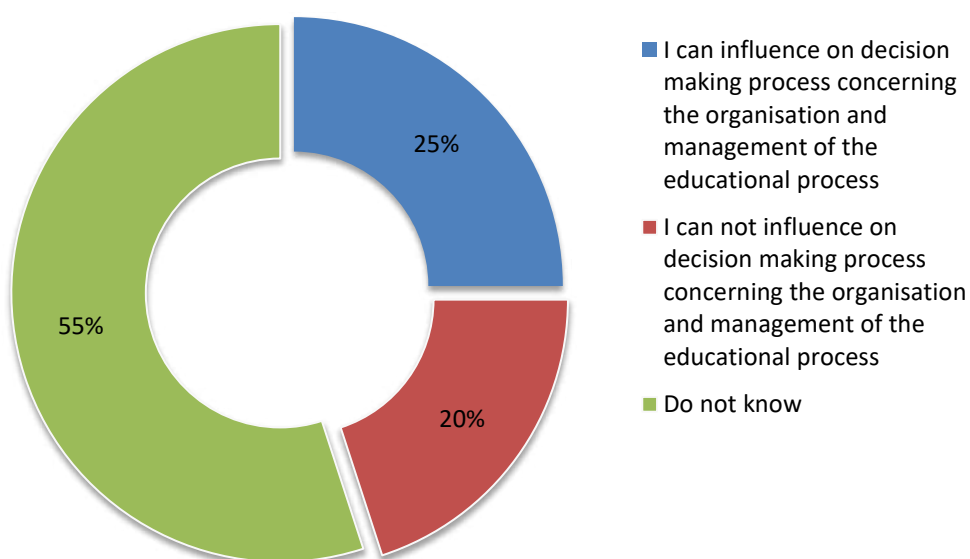
It is recommended to include in the profile of the annual poll of students the question concerning the assessment of research impact on the quality of education.

Additional information

In the course of on-site visit, the experts have analyzed the students' participation in student government. This diagram illustrates the data that reflects the students' participation in decisions on the organization and management of the educational process.

Based on the analysis of the submitted data, experts conclude that there is a quite active participation of students in determining the content of the program. At the same time, as can be seen from the chart, more than 50% of students find it difficult to answer the question about their real participation in the development of the program, and only one in four of the total number of respondents indicates the possibility of taking into account the views of students in the development of educational programs.

Participation of students



4.11. Services for students on a program level

Evaluation of criteria: Excellent

Strengths of the program

Analytical Center "Education and Career" that was established to promote the employment of students and graduates as socially vulnerable groups of the population holds regular training sessions on employment, advices on resume writing, as can be found on the bulletin boards of the University, on the web-site of the center and on social networks.

The "Dubna" University and its subsidiaries provide their students with various forms of financial support.

Great opportunities for high-quality recreation and sports activities are provided by one of the best sports facilities of Moscow region - a sports complex "Olympus", which organizes regular cultural and sports events for students.

Recommendations

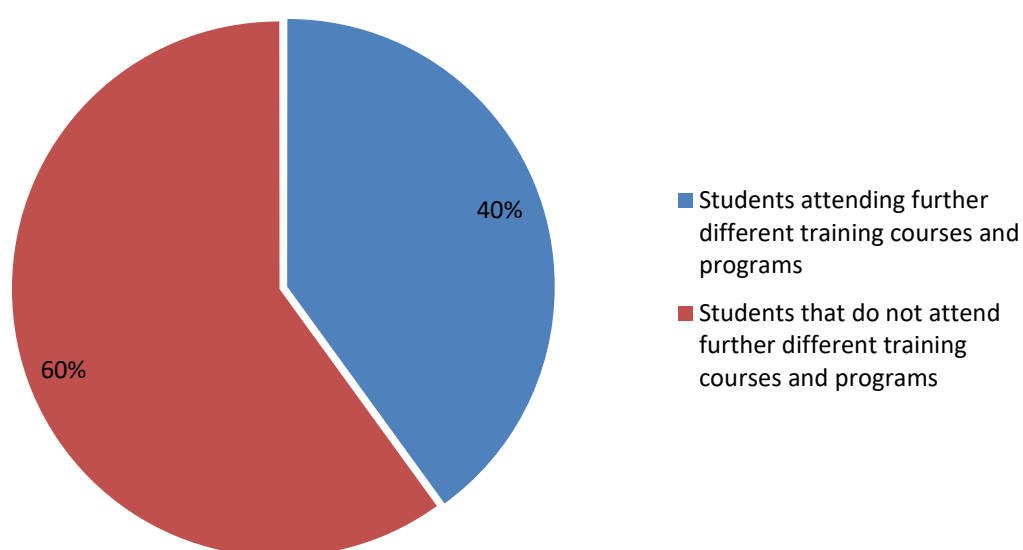
A range of material and scholarship support for students is not implemented to the full extent. The organization of student cafeteria food at beneficial prices, payment of spa treatment, scholarships of rector and employers are not included. It is recommended to extend the range of applicable financial support mechanisms for students.

Additional information

In the course of on-site visit, the documents confirming the attendance by students of additional courses and programs were presented to the experts.

Based on analysis of the submitted data, experts conclude that an active attendance of other courses and programs and recommend students to continue further this line of work.

Attendance of further training programs



4.12. Occupational guidance. Quality assessment of applicants' knowledge

Evaluation of criteria: Satisfactory

Strengths of the program

The main educational program is in demand among graduates of Bachelor degree program of the Systems Analysis and Management Institute of the "Dubna" University.

Recommendations

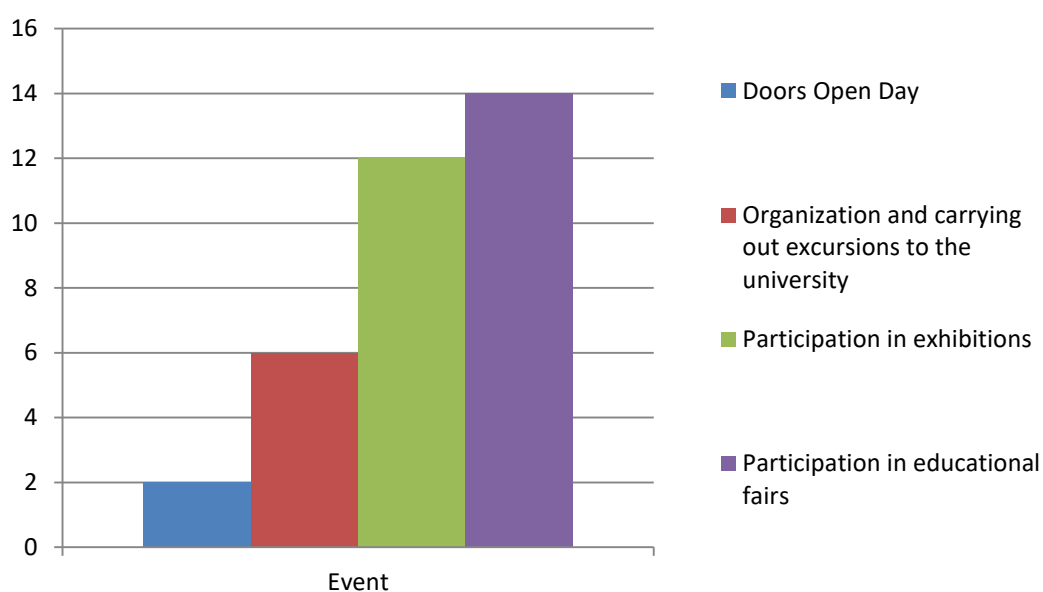
The system of occupational guidance is designed primarily for students of Bachelor degree program of the "Dubna" University. It is advisable to increase the number of events to invite prospective bachelors from other universities. On the one hand, it will also help to increase the prestige of the university, and on the other, it will increase the number of those wishing to continue their studies at Master degree program of the "Dubna" University.

Additional information

According to the analysis of documents and interviews with program managers, the experts made a diagram showing the number of activities carried out during the last academic year. Totally there were more than 150 events during the year, however most of them were focused on students entering the Bachelor's program. The experts identified 31 events from mentioned above that were also oriented on students entering to the Masters degree program:

- Doors Open Days - 2;
- Organization and carrying out excursions to the university - more than 20;
- Participation in exhibitions - 6;
- Participation in educational fairs - 3.

**Occupational guidance held by academic staff within
the program enrollment**



CV of Experts

Name of the Expert: Sergey E. Sosyonushkin

Place of work, position	FSBEI HE "MSTU" STANKIN ", director of Informatization center of the University, Associate Professor of Information Systems
Academic degree, academic title	PhD in Technical Sciences
Deserved titles, degrees	–
Education	higher
Professional achievements	Winner of the Prize of the Government of the Russian Federation in the field of quality, twice winner of the competition for the right to receive the Russian president grants for young scientists, the author of over 30 scientific and educational papers
Research interests	Information and telecommunication systems and technologies
Practical experience in the direction of the program subject to assessment	He defended his candidate thesis on specialty "System analysis, management and information processing (technical systems)"; Head of the IT department; The head of the subcommittee 5 "Functional safety of ICT in Education" in the Technical Committee 461 "Information and Communication Technologies in Education", a member of the development of more than 10 Russian drafts of national standards on the use of ICTs in education

Name of the Expert: Olga A. Semova

Place of work, position	Director on work with Corporate Clients, OOO "UNIAR"
Academic degree, academic title	
Deserved titles, degrees	
Education	higher
Professional achievements	
Research interests	
Practical experience in the direction of the program subject to assessment	10 years

Name of the Expert: Eduard Petlenkov

Place of work, position	Tallinn University Of Technology (TUT) Associate Professor, Department of Computer Systems; Head of the Centre for Intelligent Systems
Academic degree, academic title	PhD
Deserved titles, degrees	–

Education	higher
Professional achievements	Member of the Qualification Assessment Council in Information Technology and Telecommunication (established by the Estonian government) Member of the Council of the TUT Computer System Department Member of the Management Committee for Project COST CA15225 "Fraction Order Systems: Analysis, Synthesis, and Their Importance for Further Programming".
Research interests	Natural Sciences and engineering, telecommunications
Practical experience in the direction of the program subject to assessment	

Name of the Expert: Petrov Mikhail

Place of work, position	BMSTU student, direction Information technologies and system analysis
Academic degree, academic title	
Deserved titles, degrees	–
Education	higher
Professional achievements	
Research interests	
Practical experience in the direction of the program subject to assessment	

