MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER EDUCATION "DON STATE TECHNICAL UNIVERSITY"

(DSTU)

ACCEPTED
at meeting of the University
Academic Council of
"29" 06 2023 № 12.

APPROVED
Rector
_____ B.Ch. Meskhi
"29" 06 2023
stamp
registration number 17-162-257

DESCRIPTION

The main professional educational program of higher education

BIG DATA AND INTELLIGENT SYSTEMS

15.04.04 Automatization of technological processes and production

Full-time

2023
year of admission

Agreed:
Managing Partner
LLC ARCHIS,
Candidate of Technical Sciences
_____ Ivanov A.A.
(signature, stamp)
"19" 06 2023

Agreed:
Professor at the Department of 'Transport machines and tribotechnics' FGBOU VO RSTU
Doctor of Technical Sciences, prof.
_____ Shapovalov V.V.
(signature, stamp)
"20" 06 2023

Rostov-on-Don
2023

List of approval of the main professional educational program of higher education

The main professional educational program of higher education in the field of training (specialty) 15.04.04 Automation of technological processes and production, profile Big data and intelligent systems, developed by the graduate Department of 'Automation of Production Processes'.

The reviews of the representatives of the relevant companies are on file with the graduation department.

DEGREE PROGRAM DEVELOPERS:

Program leader _____ A.D. Lukyanov
(signature)

Head of the Department 'Automation of Production Processes' _____ A.D. Lukyanov
(signature)

Chairperson of the Scientific Methodological Council for Enlarged Groups of Educational Areas _____ M.A. Tamarkin
(signature)

Approved by the Council of the Faculty

Automation, Mechatronics and Control
(name)

Ag. dean _____ I.I. Naumov
(signature)

AGREED:

Vice-Rector for AIA _____ A.N. Beskopylnyy
(signature)

Chairperson of the Student Council of DSTU _____ T.V. Yurakova
(signature)

Head of Academic Policy Department _____ S.V. Nosachev
(signature)

CONTENT

SUMMARY

OF THE MAIN PROFESSIONAL EDUCATIONAL PROGRAMME OF HIGHER EDUCATION IN THE FIELD OF EDUCATION

Level of education:
Master's degree

Degree programme profile:
Intelligent systems for acquisition and analyzing Big Data

Title and code of the broad field of education:
15.00.00 Mechanical Engineering

Degree programme:
15.04.04 Automation of technological processes and production

Workload (ECTS):
120 credits

Duration and mode of study according to the degree programme – full-time education is 2 years.

Qualification (degree) – Master

Degree programme description:

Intelligent systems for collecting and analyzing big data are the leading trend in the development of automation systems. 'Big Data' is fundamentally changing our understanding of the possibilities of data analysis and their use in automatic control systems. In the training program, you will master all stages of collection, processing and analysis - from sensors and sensors to neural networks and machine learning.

The program is designed to train highly qualified specialists in the application of methods and algorithms of artificial intelligence and big data analysis in the development and operation of devices and automation systems with microcontroller and computer control. Preparation includes the use of modern integrated development, configuration and programming environments, as well as supervisory control and data acquisition systems (SCADA systems).

The program has been implemented as part of the federal project 'Artificial Intelligence' of the national program 'Digital Economy of the Russian Federation' since 2022, and is unique within the pool of artificial intelligence programs implemented at DSTU.

The preparation of students is based on the study and implementation of knowledge about the methods of artificial intelligence, machine learning, pattern recognition,

BigData processing in automatic control and information collection systems. Hardware is also studied - sensors, controllers, etc.

When teaching, the resources of the department are used - specialized laboratories, the scientific and technical base of the DSTU (scientific laboratories, Garage coworking, etc.) and the bases of practices of partner enterprises.

Possible positions of graduates:

- engineer-developer of automation tools;
- researcher in the field of AI, data analysis and machine learning;
- big data engineer

Type(s) of professional activity(s) for which graduates are prepared

Strategic partners of the program (employers) -

- FSUE VNII ‘Gradient’;
- JSC ‘Rostvertol’;
- JSC “Kvant”;
- LLC ‘Agrotsifra’;
- JSC ‘Aviatest’;
- Innotech LLC.

1 CHARACTERISTICS OF THE MAIN PROFESSIONAL EDUCATIONAL PROGRAM OF HIGHER EDUCATION

The main professional educational program of higher education, implemented in the direction of master's degree 15.04.04 Automation of technological processes and production with the training program ‘Intelligent systems for collecting and analyzing big data’ is a system of documents developed and approved at DSTU taking into account the needs of the regional labor market on the basis of the Federal State Educational Standard of Higher Education - Master's degree in the direction of training 15.04.04 Automation of technological processes and productions (order of the Ministry of Education and Science of Russia dated 25.11.2020 No. 1452).

The educational program regulates the goals, planned results, content, conditions and technologies for the implementation of the educational process, assessment of the quality of graduate training in this field of training and includes: curriculum, calendar training schedule, work programs of academic disciplines (modules), practices and state final certification and other materials that ensure the quality of training of students, and also, the necessary methodological materials that ensure the implementation of the appropriate educational technology.

1.1 Aims and objectives of degree program

The main purpose of the educational program is the training of qualified personnel in the field of intelligent control systems, artificial intelligence, machine learning, the application of neural networks, the collection, processing and analysis of big data through the formation of students' universal, general professional and professional competencies in accordance with the requirements of the Federal State Educational Standard of Higher Education, as well as the development of personal qualities (purposefulness, organization, diligence, responsibility, communication skills, tolerance, general culture), allowing to realize the formed competencies in professional activity.

The educational program aims at documenting and methodological support for the implementation of the Federal State Educational Standard of Higher Education and, on this basis, the development of students' personal qualities, as well as the formation of universal, general professional and professional competencies that contribute to successful activities in the profile of training.

In the field of education, the goal of the educational program is to form the socio-personal qualities of students: purposefulness, organization, diligence, responsibility, citizenship, communication skills, tolerance, increasing their general culture.

In the field of education, the purpose of the educational program is:

- formation of graduates' competencies necessary for the implementation of professional activities in accordance with the Federal State Educational Standard;
- formation of the ability to acquire new knowledge, psychological readiness to change the type and nature of their professional activities and providing graduates with the opportunity to continue their education;

- providing a variety of educational opportunities for students;
- ensuring the training of graduates who are able to show flexibility and activity in changing labor market conditions, for areas of activity within the competence of the master to specify the specifics of the direction.

The program is implemented independently without the use of a network form.

Educational activities in the educational program are implemented in English.

1.2 Qualifications awarded to graduate

Upon successful mastering of the educational program in the graduate is awarded the qualification ‘master’ in the direction of training 15.04.04 ‘Automation of technological processes and production’

1.3 Workload of degree program

The volume of the educational program is 120 credits for the entire period of study in accordance with the Federal State Educational Standard for this area of training and includes all types of classroom and independent work, practice and time allocated for quality control of mastering the educational program by students.

1.4 Duration of degree program

The term of obtaining education within educational program in accordance with the Federal State Educational Standard in this field of training (specialty) in full–time education is 2 years.

2 CHARACTERISTICS OF GRADUATES PROFESSIONAL ACTIVITY

2.1 The field(s) of professional activity and the sphere(s) of professional activity of the graduate.

06 Communication, information and communication technologies.

2.2 Type(s) of tasks and objectives of graduate's professional activity

production and technological activities:

- modernization and automation of existing and design of new automated and automated production and technological processes using automated systems of technological preparation of production;
- development and practical implementation of automation tools and systems for monitoring, diagnostics and testing, automated product lifecycle management and quality;

- ensuring the necessary resilience of automation tools and systems, monitoring, diagnostics, testing and management when changing the action of external factors that reduce the effectiveness of their functioning and planning measures for continuous improvement of product quality;
- analysis of the state and dynamics of the functioning of automation tools and systems, control, diagnostics, testing and product quality management, metrological and regulatory support of production, standardization and certification using appropriate modern methods and means of analysis;
- development of measures for the integrated use of raw materials, replacement of scarce materials and finding ways to dispose of production waste;
- investigation of the causes of defects in production and development of proposals for its prevention and elimination;
- ensuring reliability and safety at all stages of the product life cycle;
- selection of environmental safety systems of production;

2.3 Objects of graduate's professional activity

The objects of professional activity of graduates of master's degree programs are:

- products and equipment of various service purposes of enterprises and organizations, production and technological processes of its manufacture;
- automation systems of production and technological processes of manufacturing products for various service purposes, management of its life cycle and quality, control, diagnostics and testing;
- means of technological equipment for automation, management, control, diagnostics, testing of main and auxiliary production, their mathematical, software, information and technical support, as well as methods, methods and means of their design, manufacture, debugging, production testing, operation and scientific research in various sectors of the national economy;
- research in the field of automation of technological processes and production, product lifecycle management and quality;
- regulatory documentation.

2.4 Description of work functions in accordance with the professional standard (map of professional activity)

In accordance with the professional standard 06.042 ‘Big Data Specialist’ (Order of the Ministry of Labor No. 405n 06.07.2020), the graduate must master the following labor functions:

- Development and implementation of new methods and technologies for big data research;

- Improvement and development of new methods, models, algorithms, technologies and tools for working with big data (D/01.8)

- Conducting tests and developing recommendations for the introduction and use of improved or developed new methods, models, algorithms, technologies and tools for working with big data (D/02.8)

2.5 Key partners of the educational program

The key partners (representatives of employers' associations) involved in the formation and implementation of educational program are:

- FSUE VNII ‘Gradient’;
- Rostvertol OJSC;
- JSC ‘Kvant’;
- LLC ‘Agrocifra’;
- JSC Aviatest;
- LLC Inontech.

The educational program does not contain information constituting a state or other legally protected secret.

3 EXPECTED RESULTS OF MASTERING THE MAIN PROFESSIONAL EDUCATIONAL PROGRAM OF HIGHER EDUCATION

The results of mastering the educational program are determined by the competencies acquired by the graduate, i.e. his ability to apply knowledge, skills and personal qualities in accordance with the tasks of professional activity.

As a result of mastering this educational program in the graduate should have the following competencies:

universal competencies (UC):

UC-1 - able to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of actions;

UC-2 - able to manage the project at all stages of the life cycle;

UC-3 - able to organize and manage the work of the team, develop a team strategy to achieve the goal;

UC-4 - able to apply modern communication technologies, including in a foreign language(s), for academic and professional impact;

UC-5 - able to analyze and take into account the diversity of cultures in the process of cross-cultural impact;

UC-6 - able to determine and implement the priorities of its own activities and ways to improve it based on self-assessment.

Additional universal competencies added to the educational program in accordance with the Competence Model developed by the Plekhanov Russian University of Economics

AUC-1 - able to apply legal norms, ethical rules and standards in the field of artificial intelligence, develop standards, ethical rules related to the interaction of humans and artificial intelligence.

general professional competencies (GPC):

GPC-1 - able to formulate research goals and objectives, identify priorities for solving problems, select and create criteria for evaluating research results;

GPC-2 - able to carry out the examination of technical documentation in the field of its professional activity;

GPC-3 - able to organize work on the improvement, modernization and unification of manufactured products and their elements;

GPC-4 - able to develop methodological and regulatory documents, including draft standards and certificates, taking into account existing quality standards, to ensure their implementation in production;

GPC-5 - able to develop analytical and numerical methods for creating mathematical models of machines, drives, equipment, systems, technological processes;

GPC-6 - able to carry out research activities using modern information and communication technologies, global information resources;

GPC-7 - able to conduct marketing research and prepare business plans for the production and sale of promising and competitive products in the field of mechanical engineering;

GPC-8 - able to analyze draft standards, innovation proposals and inventions in the field of mechanical engineering; prepare reviews and conclusions on their evaluation;

GPC-9 - able to present the results of research in the field of mechanical engineering in the form of scientific and technical reports and publications;

GPC-10 - able to develop standard test methods for determining technological indicators of automated production equipment;

GPC-11 - able to develop modern research methods for automated equipment in mechanical engineering;

GPC-12 - able to develop and optimize algorithms and modern Intelligent systems for computer-aided design of technological processes, create programs for manufacturing parts and assemblies of various complexity on machines with numerical control, design algorithms for the functioning of flexible production systems.

Additional general professional competencies added to the educational program in accordance with the Competence Model developed by the Plekhanov Russian University of Economics

AGPC-1 - able to independently acquire, develop and apply mathematical, natural science, socio-economic, general engineering knowledge and knowledge in the field of cognitive sciences to solve basic, non-standard tasks of creating and applying artificial intelligence, including in a new or unfamiliar environment and in an interdisciplinary context;

AGPC-5 - able to explore modern problems and methods of computer science, artificial intelligence and the development of information society, digital economy.

professional competencies (PC):

PC-1 - able to explore the application of intelligent systems for various subject areas;

PC-2 - able to choose and participate in conducting an experimental verification of the operability of software platforms of knowledge-based systems to ensure the required criteria for efficiency and quality of functioning;

PC-3 - able to manage projects for the creation, support and use of knowledge-based systems on the part of the customer;

PC-4 - able to use methods tools of knowledge engineering;

PC-5 - able to manage projects for the creation, support and use of business intelligence systems in the organization by the customer;

PC-6 - able to adapt and apply machine learning methods and algorithms to solve applied problems;

PC-7 - able to manage projects on the part of the customer of artificial intelligence using new methods and algorithms of machine learning on the part of the customer;

PC-8 - able to manage projects on the part of the customer for the creation, support and use of an artificial intelligence system based on neural network models and methods;

PC-9 - able to manage software projects on the part of the customer to create complex systems based on big data analytics in various industries;

PC-10 - able to manage projects on the part of the customer for the creation, implementation and use of one or more end-to-end digital artificial intelligence technologies in applied areas.

The competencies of PC, UPC, AGPC were introduced into the educational program based on the results of their development within the framework of the grant ‘Development of a model of competencies in the field of artificial Intelligence’, carried out by the Plekhanov Russian University of Economics.

In accordance with the requirements, indicators of achievement of universal, general professional and professional competencies have been established, which are formed in the document ‘Indicators of achievement of competencies’.

4 REQUIREMENTS FOR THE STRUCTURE OF THE EDUCATIONAL PROGRAM

4.1 Structure of the educational program

The structure of the educational program includes the following units:
Unit 1 ‘Disciplines (modules)’.
Unit 2 ‘Practice’.
Unit 3 ‘State final certification’.
Table 1 - Structure and scope of the program [1]

Program structure		The requirement of the Federal State Educational Standard in ECTS
Unit 1	Disciplines (modules)	no less than 70
Unit 2	Practice	no less than 21
Unit 3	State final certification	no less than 9
Program volume		120

4.2 Unit 2 ‘Practice’

Unit 2 ‘Practice’ includes educational and industrial practices.
Types of educational practice:
Specific types of educational practice are specified in the curricula.

Types of industrial practice:
Specific types of industrial practice are specified in the curricula.

When conducting an internship by directly performing certain types of work by students related to future professional activity, this type of practice is carried out in the form of practical training.

4.3 Unit 3 'State final certification’

Unit 3 'State final certification’ includes the defense of the final qualifying work, including preparation for defense and the defense procedure.

[1] In accordance with the Federal State Educational Standard

5 DOCUMENTS REGULATING THE CONTENT AND ORGANIZATION OF THE EDUCATIONAL PROCESS IN THE IMPLEMENTATION OF THE EDUCATIONAL PROGRAM

5.1 Curriculum, academic schedule, work programs of disciplines (modules), practices, program state final certification (final assessment) and methodological materials

The following components of the educational program are in the electronic information and educational environment and on the official website of DSTU in the appropriate education level subsection ‘Education’:

- description of educational program;
- curricula;
- academic schedules;
- annotations to working programs of disciplines (modules), practices;
- working programs of disciplines (modules), practices;
- state final certification programs;
- methodological materials (including in the DSTU Electronic Library System).

5.2 Evaluation materials on disciplines (modules), practices, research work and state final certification

Evaluation materials on the educational program allow you to assess the level of competence formation and are developed in accordance with the Regulations on evaluation materials (evaluation tools).

Evaluation materials may contain: test tasks, control questions and standard tasks for practical and laboratory classes, for written works, control works, colloquiums, preparation of reports, abstracts, speeches, preparation of reports, group and individual projects, tests and exams; tests and computer testing programs; approximate topics of term papers, abstracts and etc., as well as other forms of control that allow assessing the degree of formation of students' competencies.

Evaluation materials for the final (state final) certification include a list of competencies that students should master as a result of mastering the educational program, a description of indicators and criteria for assessing competencies, as well as other materials necessary for evaluating the results of mastering the educational program; methodological materials defining the procedures for evaluating the results of mastering the educational program.

Evaluation materials for each discipline (module), practice, and state final certification are stored as part of the educational program in the structural unit of the university that implements the educational program.

5.3 Methodological materials on disciplines (modules), practices, research work and state final certification

Methodological materials represent a set of methodological materials on the discipline (module, practice, state final certification), formed in accordance with the structure and content of the discipline (module, practice), the educational technologies used and the forms of organization of the educational process.

Organizational and methodological materials (guidelines, recommendations) allow the student to optimally plan and organize the process of mastering the educational material.

Educational and methodological materials are aimed at students' assimilation of the content of the discipline (module, practice, research, state final certification), and are also aimed at checking and appropriately assessing the formation of students' competencies at various stages of mastering the educational material.

Textbooks, manuals, teaching aids (materials or documentation), a workbook, a workshop, a task book, etc. are used as educational publications.

6 RESOURCE SUPPORT OF THE EDUCATIONAL PROGRAM

6.1 Educational, methodological and informational support of the educational process in the implementation of the educational program

The educational program is provided with educational and methodological documentation and materials in all disciplines (modules), practices of the state final certification.

The implementation of the educational program is ensured by the access of each student to databases and library collections formed according to the full list of disciplines (modules) of the educational program. During independent training, students are provided with access to the Internet.

Each student is provided with individual unrestricted access to one or more electronic library systems (electronic libraries) and to the electronic information and educational environment of the university during the entire period of study. The electronic library system (electronic library) and the electronic information and educational environment provide the possibility of student access from any point where there is access to the information and telecommunications network 'Internet', both on the territory of the organization and outside it.

The electronic information and educational environment of the university provides:

- access to the electronic library system;
- access to electronic educational resources and/or professional databases (collections of information resources on topics) in accordance with the content of the educational program being implemented;
- access to an electronic learning system that ensures the interaction of teaching staff with students (personal accounts of students and teachers);
- access to an electronic schedule (an electronic schedule means a service through which each student can find out their current schedule of classes and sessions);

- access to students' electronic portfolios;

- access to curricula, work programs of disciplines (modules), practice programs, electronic educational publications and electronic educational resources specified in the work programs of disciplines (modules), practice programs according to the educational program.

The functioning of the electronic information and educational environment is ensured by appropriate means of information and communication technologies and the qualifications of employees who use and support it.

The Scientific and Technical Library of DSTU is equipped with the necessary telecommunication equipment, communication means, electronic equipment, has free access to the Internet, uses Wi-Fi technologies. For independent work of students, there are 5 reading rooms with 720 seats, including 42 automated workstations with access to the Internet and the electronic educational environment of the university.

The electronic library of the University, which includes access to resources, virtual services and information materials, is formed on a single portal of the Scientific and Technical Library https://ntb.donstu.ru /, which can be accessed from the electronic information and educational environment of the university. A 'Single Search Window' system has been formed on the library's website, which combines the search for its own and external resources of the Scientific and Technical Library.

Each student is provided with individual unrestricted access (remote access), including in the case of e-learning, distance learning technologies, to the electronic library and electronic information and educational environment of the university, electronic library systems, modern professional databases and information reference systems, the composition of which is defined in the work programs of disciplines and is updated annually, to the electronic information resources of the NTB (https://ntb.donstu.ru/content/elektronno-informacionnye-resursy) from anywhere on the Internet 24/7, containing:

- EBS 'University Library online' (http://biblioclub.ru);
- EBS 'IPRbooks' (http://www.iprbookshop.ru);
- EBS 'Lan' (https://e.lanbook.com);
- ABS 'Znanium' (http://znanium.com);
- EBS 'DSTU' (https://ntb.donstu.ru/ebsdstu);
- electronic library of dissertations of the Russian State Library (https://dvs.rsl.ru);
- information and reference system 'Techexpert: norms, rules, standards and legislation of Russia';
- information and educational system 'Rosmetod' (http://rosmetod.ru) and others.

The library fund is equipped with printed publications at the rate of at least 0.25 copies of each of the publications specified in the work programs of disciplines (modules), practice programs for one student from among persons simultaneously mastering the relevant discipline (module), undergoing appropriate practice (FGOS 3++).

Students from among persons with disabilities are provided with electronic educational resources in forms adapted to the limitations of their health.

The fund of periodicals contains, among other things, the following publications on educational program:

- electronic scientific journals on the NEB eLibrary platform (https://elibrary.ru);
- electronic scientific journals in the collection of EBS 'Lan' (https://e.lanbook.com/journals);
- electronic scientific journals in the collection of EBS 'IPRbooks' (http://www.iprbookshop.ru/6951.html);
- electronic scientific journals in the collection of the EBS 'University Library Online' (http://biblioclub.ru);
- electronic scientific journals in the collection of EBS 'Znanium' (http://znanium.com);
- specialized electronic periodicals in ISS 'Techexpert';
- archive of scientific journals of the Non-profit Partnership 'National Electronic Information Consortium' (NP NEICON) (http://archive.neicon.ru);
- archive of periodicals on the ScienceDirect platform of Elsevier publishing house (https://www.sciencedirect.com).

6.2 Personnel support for the implementation of the educational program[2]

The qualification of DSTU teaching staff meets the qualification requirements specified in the qualification reference books and (or) professional standards (if any).

At least 70 percent of the number of teaching staff of the university participating in the implementation of the educational program, and persons involved in the implementation of the educational program on other terms (based on the number of substituted rates reduced to integer values), must conduct scientific, educational, methodological and (or) practical work corresponding to the profile of the discipline (module) taught.

At least 5 percent of the number of DSTU teaching staff participating in the implementation of the educational program, and persons involved by the university in the implementation of the master's degree program on other terms (based on the number of replacement rates reduced to integer values), must be managers and (or) employees of other organizations engaged in work in the professional field corresponding to the professional the activity for which graduates are preparing (have at least 3 years of work experience in this professional field).

At least 60 percent of the number of DSTU teaching staff and persons involved in educational activities on other terms (based on the number of substituted rates reduced to integer values) must have an academic degree (including an academic degree obtained in a foreign country and recognized in the Russian Federation), and (or) an academic title (including an academic title obtained in a foreign country and recognized in the Russian Federation).

[2] The section is filled in in accordance with the FSES

The general management of the scientific content of the master's degree program is carried out by a scientific and pedagogical employee of the organization who has an academic degree (including an academic degree obtained in a foreign country and recognized in the Russian Federation), who carries out independent research (creative) projects (participating in the implementation of such projects) in the field of training, who has annual publications on the results of the specified research (creative) activities in leading domestic and (or) foreign peer-reviewed scientific journals and publications, and also carrying out annual approbation of the results of this research (creative) activity at national and international conferences.

6.3 Material and technical support of the educational program

The University has a sufficient material and technical base that ensures the conduct of all types of disciplinary and interdisciplinary training, laboratory, practical and research work of students provided for in the curriculum, and corresponding to the current sanitary and fire safety rules and regulations.

The premises for independent work of students are equipped with computer equipment with the ability to connect to the Internet and provide access to the electronic information and educational environment of the organization.

The University is provided with the necessary set of licensed and freely distributed software, including domestic production (the composition is determined in the working programs of disciplines (modules), and is subject to updating (if necessary).

Students are provided with access (remote access), including in the case of e-learning, distance learning technologies, to modern professional databases and information reference systems, the composition of which is determined in the work programs of disciplines (modules) and is subject to updating (if necessary).

7 CHARACTERISTICS OF THE SOCIO-CULTURAL ENVIRONMENT OF THE UNIVERSITY, ENSURING THE DEVELOPMENT OF STUDENTS UNIVERSAL COMPETENCIES STUDENTS

The socio-cultural environment of the university is a set of conceptual, substantive, personnel, organizational and methodological resources aimed at creating a humanitarian environment in an educational institution that ensures the development of universal competencies of students.

The university carries out systematic work on the implementation of youth policy and educational work, the organizational structure of the educational process is effective – the Department for Educational Work and Youth Policy, the Department for the Development of Student Sports, as well as the Student Council, student associations and the Commissioner for Students' Rights.

Educational activities and extracurricular general cultural work at the university are organized in a number of areas:

1) ‘Civil-patriotic education’. Rallies and festive mass events dedicated to public holidays, memorable dates of the history of Russia are organized and held: Defender of the Fatherland Day, Victory Day, Cosmonautics Day, etc. Open lectures, military sports games are held, film screenings are organized.

2) ‘Creative education’. The creative abilities of students are being realized in creative collectives that carry out their activities at DSTU: the Bravo Studio theater; the DSTU creative center, within which such creative collectives as the Lis Theater, the Impulses pop collective, the Zodchie Theater of Modern Choreography, the Imedi exemplary folk choreographic ensemble work, dance theater ‘Without limit’, dance group ‘D'angels’, studio of choreographic miniatures ‘Arabesque’, vocal studio ‘New Generation’, Don KVN center, etc.

3) ‘Cultural and moral education’. A significant contribution to the educational work is made by the cultural center and the Scientific and Technical Library of the University.

The Cultural Center forms a cultural and aesthetic environment at the university and instills the basics of corporate culture in students. This is facilitated by the fact that the main solemn events and holidays at the university are accompanied by the removal of the university's flag, listening and singing the DSTU anthem, which was created on the initiative of the cultural center.

On the basis of the scientific and technical library, book exhibitions, review lectures, literary and musical compositions that contribute to the cultural development of the student's personality and the prevention of negative social phenomena are regularly held.

4) ‘Social interaction’. Students of DSTU participate in volunteer groups and annual actions: ‘Backpack of happiness’; ‘Days of donor coming of age’; ‘Santa Claus Bag’, etc.

5) ‘Psychological education’. Active work is being carried out and activities are being carried out in the following areas: psychological education; comprehensive work on the socio-psychological adaptation of first-year students; psychological diagnostics; group training work; psychological counseling and correction.

6) ‘Physical education’. The festival of student sports ‘Burevestnik’, the sports contest of freshmen, the rally ‘Winter Cup of DSTU’, etc. are held.

The following student public organizations are successfully functioning at the university:

1. Student Council of DSTU, including student Councils of dormitories;

2. Primary trade union organization of students of DSTU;

3. Volunteer centers: volunteer center for social work ‘Burning hearts’, volunteer center ‘Zvezda’, student psychological unit ‘Assistance’;

4. The headquarters of the student detachments of DSTU;

5. Commissioner for the rights of students of DSTU.

6. ‘Student self-government’. DSTU attaches particular importance to the development of student self-government, in which the Student Council of DSTU plays an important role. There are representatives of the Student Council at every faculty, in every dormitory and in every academic group.

An important role in the educational process is played by traditional mass events held by the university for the formation and development of corporate culture: Freshman Day, Art Week, Tatiana's Day, ‘Miss DSTU’, etc.

An important role in the general cultural development of students of the university is assigned to the Primary trade union Organization of students of DSTU, which unites students of the university to implement the tasks assigned to it. Such tasks include: protection of professional, labor, socio-economic rights and interests of trade union members; providing trade union members with legal and social protection; negotiating with the university administration, concluding a collective agreement and its implementation, providing material and consulting assistance to trade union members, exercising public control over the operation of the catering complex, etc.

The activities of the University History Center are of great importance in educational work. Here you can get acquainted with the history and traditions of the university, learn a lot about outstanding people directly involved in many events: veterans of the Great Patriotic War, the leaders of production, graduates of the university.

The university has a Psychological support Center, a youth center for the prevention of negative phenomena ‘Quality of Life’.

For recreation and sports, students and university employees are given the opportunity to visit sports facilities, including: the sports and recreation complex of DSTU with a swimming pool, an athletics arena, the sports and recreation complex ‘Rainbow’, the sports and recreation complex ‘Builder’, the recreation center of DSTU on the left bank of the Don, the sanatorium-dispensary ‘Zarya’, equestrian club of DSTU ‘Horse running’, aeronautics club ‘Don Sky’, yacht club ‘Quiet Don’ and other elements of sports infrastructure (large university gym, mini-football field, gyms in dormitories, billiard club, football field and obstacle course).

The university has created a socio-cultural environment necessary for the formation of a civil, legal and professional position of participation, the readiness of all members of the team to communicate and cooperate, the ability to perceive social, personal and cultural differences with tolerance.

Information about extracurricular work is posted on the university's website. Social networks are actively used in this direction. Announcements about the events and their social significance are placed on the information stands of the faculty. Curators of groups and deputy deans introduce students to the schedule of upcoming events and organize their participation.

8 FEATURES OF THE ORGANIZATION OF THE EDUCATIONAL PROCESS FOR PEOPLE WITH DISABILITIES

DSTU has created special conditions for obtaining higher education according to educational programs for students with disabilities.

Special conditions for obtaining higher education according to educational programs by students with disabilities are understood as learning conditions, including

the use of special educational programs and methods of teaching and upbringing, special textbooks, teaching aids and didactic materials, special technical means of teaching for collective and individual use, the provision of tutor services (from among the teaching staff), sign language interpreter, teacher-a psychologist, a social pedagogue, providing students with the necessary technical assistance; conducting group and individual remedial classes, providing access to DSTU buildings and other conditions, without which it is impossible or difficult for students with disabilities to master educational programs.

Information about special conditions created for students with disabilities is available on the university's website (https://clck.ru/FJWKV)

The education of students with disabilities can be organized both jointly with other students, and in separate groups or according to an individual curriculum (based on the student's application).

When studying in separate groups of students with disabilities, the number of groups is no more than 15 people.

The term of obtaining higher education according to an individual plan for persons with disabilities, if necessary, can be extended, but not more than 1 year (bachelor's degree, specialty) or 6 months (master's degree).

Material and technical support of the educational process:

1. For persons with hearing disabilities:

- availability of sound-amplifying equipment, multimedia and other technical means of receiving and transmitting information in accessible forms;

- the classroom where students with hearing impairment study will be equipped with computer equipment, audio equipment (acoustic amplifier and speakers), video equipment (multimedia projector, TV), electronic whiteboard, multimedia system.

2. For persons with visual disabilities:

- availability of electronic magnifiers, video magnifiers, non-visual access to information programs, speech synthesis programs and other technical means of receiving and transmitting educational information in forms accessible to this category of students;

- in classrooms, it is necessary to provide for the possibility of viewing remote objects (text on the blackboard, slide on the screen) using video magnifiers for remote viewing.

3. For persons with disabilities who have disorders of the musculoskeletal system:

- availability of computer equipment with special software adapted for students with disabilities, alternative information input devices and other technical means of receiving and transmitting educational information in forms accessible to students;

- using special features of the Windows operating system, such as an on-screen keyboard with which you can enter text, configuring Windows actions when typing using the keyboard or mouse.

Educational and methodological support of the educational process for students with disabilities provides:

1. Inclusion of specialized adaptation disciplines in the curriculum for the purpose of additional individualized correction of violations of educational and communicative skills, professional and social adaptation. The set of these disciplines is determined based on the specific situation and individual needs of students with disabilities based on the student's application.

2. In the educational process, socially active and reflective teaching methods, technologies of socio-cultural rehabilitation should be widely used in order to assist in establishing full-fledged interpersonal relationships with other students, creating a comfortable psychological climate in the student group.

3. Providing students with disabilities with special printed and electronic educational resources in forms adapted to the limitations of their health (students with hearing impairment receive information visually, visually impaired – audibly (using speech synthesizer programs).

4. For practical training for persons with disabilities, if necessary, special jobs are created in accordance with the nature of violations and taking into account the professional type of activity.

5. For the current monitoring of academic performance, intermediate and final attestation, evaluation materials are created adapted for persons with disabilities and allowing to assess the level of formation of all competencies declared in the educational program.

The form of the current and intermediate certification for students with disabilities is determined by the teacher in accordance with the Regulations on the current control and intermediate certification of students. If necessary, a student with disabilities, taking into account his individual psychophysical characteristics, is given the opportunity to pass an interim certification orally, in writing on paper, in writing on a computer, in the form of testing, etc., or is given additional time to prepare an answer.

9 REQUIREMENTS FOR THE APPLIED MECHANISMS FOR ASSESSING THE QUALITY OF EDUCATIONAL ACTIVITIES AND TRAINING OF STUDENTS IN THE EDUCATIONAL PROGRAM

The quality of educational activities and training of students within the educational program is determined within the framework of an internal evaluation system, as well as an external evaluation system, in which the university participates on a voluntary basis.

In order to improve the educational program of the DSTU, when conducting a regular internal assessment of the quality of educational activities and training of students within the educational program of higher education attracts employers and (or) their associations, other legal entities and (or) individuals, including teaching staff of the university.

Within the framework of the internal system for assessing the quality of educational activities in the educational program, students are given the opportunity to assess the conditions, content, organization and quality of the educational process as a whole and individual disciplines (modules) and practices.

An external assessment of the quality of educational activities under the educational program within the framework of the state accreditation procedure is carried out in order to confirm the compliance of educational activities under the educational program with the requirements of the Federal State Educational Standard, taking into account the corresponding exemplary educational program.

External assessment of the quality of educational activities and training of students in the educational program can be carried out within the framework of professional and public accreditation.