MINISTRY OF SCIENCE AND HIGHER EDUCATION
OF THE RUSSIAN FEDERATION

PENZA STATE UNIVERSITY

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"3" июня 2023
Number of in-university registration
ПГУ-2374-ВВ

BASIC PROFESSIONAL EDUCATIONAL PROGRAMME OF HIGHER EDUCATION

Study Field

09.03.01 Informatics and Computer Engineering

Bachelor's Degree Programme

Applied Artificial Intelligence

Qualification (degree)

Bachelor

Mode of Training

Full-time

Penza, 2023

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1. GENERAL PROVISIONS

1.1 Basic professional educational programme of higher education (BPEP HE) implemented by the university in the study field 09.03.01 Informatics and Computer Engineering

Basic professional educational programme of higher education in the field of study 09.03.01 Informatics and Computer Engineering is a system of documents developed by MIREA – Russian Technological University as part of the implementation of the Agreement on the provision of grants from the federal budget in the form of a subsidy for developing bachelor's degree and master's degree programmes in the field of "artificial intelligence" , as well as for advanced training of teaching staff of educational organizations of higher education in the field of artificial intelligence (Agreement No. 075-15-2021-647 dated September 28, 2021) in accordance with Decree of the Government of the Russian Federation dated May 27, 2021 No. 798 "On approval of the Rules for the provision of grants in the form of subsidies from the federal budget to organizations for the development of bachelor's degree and master's degree programmes in the field of artificial intelligence, as well as for advanced training of teaching staff of educational institutions of higher education in the field of artificial intelligence" approved as part of the implementation of the federal project "Artificial Intelligence" of the national programme "Digital Economy of the Russian Federation" taking into account the professional standard 06.001 "Programmer", which corresponds to the professional activities of graduates and approved by the Federal State Budgetary Educational Institution of Higher Education "Penza State University".

The limited liability company "Nanosemantics Laboratory" participated in the development of the programme.

An educational program is a set of basic characteristics of education (scope, content, planned outcomes), organizational and pedagogical conditions, which is presented in the form of a curriculum, academic schedule, programmes of disciplines, courses, disciplines, other components, assessment and methodological materials, and also in the form of a programme of mentoring, schedule of mentoring, and certification forms.

1.2 Regulatory documents on the developing the BPEP HE in the study field 09.03.01 Informatics and Computer Engineering

The legal framework for developing BPEP HE of the bachelor's degree programme is formed by:

1.2.1 Federal Law of the Russian Federation dated 29 December 2012 no. 273-FZ "On Education in the Russian Federation" (amended and revised);

1.2.2. Federal state educational standard of higher education - bachelor's degree programme in the study field 09.03.01 "Informatics and Computer Engineering", approved by order of the Ministry of Education and Science of the Russian Federation dated September 19, 2017 No. 929 (with amendments and additions).

1.2.3. Professional standard PS06.001 "Programmer", approved by Order of the Ministry of Labor and Social Protection of the Russian Federation dated July 20, 2022 No. 424n.

1.2.4. Order of the Ministry of Science and Higher Education of the Russian Federation no. 245 dated 6 April, 2021 "On approving the procedure for organising and managing teaching and learning within the basic professional educational programmes (Bachelor's, Specialist's and Master's degree programmes)".

1.2.5 Order of the Ministry of Science and Higher Education of the Russian Federation no. 636 dated 29 June 2015 "On approving the procedure for conducting state final certification within the basic professional educational programmes (Bachelor's, Specialist's and Master's degree programmes)".

1.2.6 Order of the Ministry of Science and Higher Education of the Russian Federation and the Ministry of Education of the Russian Federation no. 885/390 dated 5 August 2020 "On the practical training of students".

1.2.7. Other regulatory and methodological documents of the Ministry of Science and Higher Education of the Russian Federation.

1.2.8. University regulations on organising and managing teaching and learning within the basic professional educational programmes – Bachelor's degree programmes.

1.3 General description of the Bachelor's degree programme

1.3.1. Aim (mission) of the Bachelor's degree programme in the study field 09.03.01 Informatics and Computer Engineering

The main aim of BPEP HE is the formation of universal, general professional competences in students in accordance with the requirements of the Federal State Educational Standard of Higher Education and professional competences in accordance with the requirements of professional standards, preparing graduates for activities in the development of software for computer technology and automated systems using elements of artificial intelligence.

The implementation of this aim should ensure that students master the basic methods and tools for designing computer software, methods and tools for using artificial intelligence systems, and acquire skills in practical work with objects of professional activity.

1.3.2. Duration of training within the Bachelor's degree programme

Under the full-time mode of training, including vacations provided after passing the State Final Certification, regardless the educational technologies used, the duration of training is 4 years.

Under the individual curriculum for students with disabilities, the duration of training can be increased at their request by no more than one year in comparison with the period established for the full-time mode of training.

1.3.3. Workload of training within the Bachelor's degree programme

The workload of the Bachelor's degree programme in the study field is 240 ECTSs, regardless of the mode of training, educational technologies used, joint-degree programme implementation, programme implementation according to the individual curriculum.

The workload of the Bachelor's degree programme during one academic year is not more than 70 ECTSs regardless of the mode of training, educational technologies used, joint-degree programme implementation, programme implementation according to the individual curriculum (except for accelerated learning), and under accelerated learning – not more than 80 ECTSs.

1.4 Requirements to the level of training necessary for successful completion of the BPEP

Persons who have a secondary general education, confirmed by a certificate of secondary general education or a diploma of secondary vocational education, who have presented certificates of passing the Unified State Exam (passed the necessary entrance tests) and have passed a competitive selection in accordance with the Admission Rules, annually approved by the Academic Council of the University, are allowed to take the bachelor's degree programme.

2 DESCRIPTION OF GRADUATE PROFESSIONAL ACTIVITY WITHIN THE BACHELOR'S DEGREE PROGRAMME IN THE STUDY FIELD 09.03.01 Informatics and Computer Engineering

2.1 Scope of graduate professional activity

The scope of professional activity in which graduates who have completed a bachelor's programme in this study field (hereinafter referred to as graduates) can carry out professional activities in:

06 Communication, information and communication technologies.

The scope of activity is the design, development, implementation and operation of computer technology and information systems, their life cycle management.

Graduates can carry out professional activities in other areas of professional activity, provided that their level of education and acquired competences meet the requirements for employee qualifications.

2.2 Focus of graduate professional activity

The focus of professional activity of graduates is software for computer technology and automated systems.

2.3 General description of graduate professional activity

The professional activity for which graduates who have mastered the bachelor's degree programme are prepared is the development of software requirements, design, programming, debugging, operation and administration of computer software and automated systems using elements of artificial intelligence.

2.4 List of professional standards and professional functions corresponding to the professional activity

Code and title of professional standard	Generalised labour functions			Labour functions		
	Code	Title	Qualification level	Title	Code	Qualification level (sublevel)
PS06.001 «Programmer»	D	Development of requirements and software design	6	Analysis of the possibilities for implementing requirements for computer software	D/01.6	6
PS06.001 «Programmer»	D	Development of requirements and software design	6	Computer software design	D/03.6	6

2.5. Types of tasks and tasks of professional activity

On successful completion of the Bachelor's degree programme, graduates should be able to perform professional tasks in line with the professional tasks:

– project;

– engineering and manufacturing

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List of graduate professional tasks

Professional area (according to the Catalogue of the Ministry of Labour)	Type of professional task	Professional task	Focus of professional activity (or study field)
06 Communication, information and communication technologies	project	Collecting and analyzing detailed information to formalize the subject area of the project and requirements of customer users, interviewing key employees of the customer. Forming and analyzing requirements for software for computer technology and automated systems using elements of artificial intelligence. Modelling of applied and information processes. Drawing up technical economic justification of	Computer and automated systems software

		design solutions and terms of reference for developing software for computer technology and automated systems using elements of artificial intelligence. Designing information systems by type of provision. Programming applications, creating prototypes of software for computer technology and automated systems using elements of artificial intelligence.	
06 Communication, information and communication technologies	engineering and manufacturing	Carrying out work on installation and configuration of software for computer equipment and automated systems. Keeping technical documentation. Initial training and consulting users by on issues of operating software for computer technology and automated systems using elements of artificial intelligence. Technical maintenance of information systems in the process of their operation.	Computer and automated systems software

3 GRADUATE COMPETENCES GAINED ON SUCCESSFUL COMPLETION OF THE BACHELOR'S DEGREE PROGRAMME PROGRAMME IN THE STUDY FIELD 09.03.01 Informatics and Computer Engineering

On successful completion of the basic professional educational programme (Bachelor's degree programme) in the study field 09.03.01 Informatics and Computer Engineering, graduates should have the following universal, general professional and professional competences:

3.1. Universal competences (UC) and their indicators

Category (group) of universal competence	Competence	Competence indicator
Systematic and critical thinking	**UC-1. Ability to search, critically analyze information, apply a system approach to solve the tasks in hand**	UC-1.1. Ability to analyze the task, highlighting its basic components
		UC-1.2. Ability to identify, interpret and rank information required to solve the task in hand
		UC-1.3. Ability to search for information to solve the task in hand using various types of requests
		UC-1.4. When processing information, ability to distinguish facts from opinions, interpretation, assessment, to form their own opinions and judgments, to give reasons for their conclusions and point of view
		UC-1.5. Ability to consider and offer possible solutions to the task in hand, assessing their advantages and disadvantages
Project development and implementation	**UC-2. Ability to identify the range of tasks within the framework of the goal in hand and choose the best ways to solve them, based on current legal norms, available resources and restrictions**	UC-2.1. Ability to identify the range of tasks within the framework of the goal in hand, to identify links between them
		UC-2.2. Ability to offer ways to solve tasks in hand and expected outcomes; to evaluate the proposed methods in terms of compliance with the project goal
		UC-2.3. Ability to plan the implementation of tasks within their area of responsibility, taking into account available resources and restrictions, current legal norms
		UC-2.4. Ability to perform tasks in their area of responsibility in accordance with planned outcomes and control points, and, if necessary, to adjust methods to solve the tasks
		UC-2.5 Ability to present the results of the project, to offer opportunities for their use and/or improvement
Team work and leadership	**UC-3. Ability to carry out social interaction and implement their role in a team**	UC-3.1 Ability to define their role in social interaction and teamwork, based on a cooperation strategy to achieve the goal in hand
		UC-3.2. When implementing their role in social interaction and teamwork, ability to take into account the behavioral characteristics and interests of other participants
		UC-3-3. Ability to analyze the possible consequences of personal actions in social interaction and teamwork, and to build productive interactions with this in mind
		UC- 3.4 Ability to exchange information, knowledge

		and experience with team members; to evaluate ideas from other team members to achieve the goal in hand
		UC-3.5 Ability to comply with norms and established rules of teamwork; to take personal responsibility for the result
Communication	**UC-4. Ability to carry out business communication in oral and written forms in the state language of the Russian Federation and foreign language(s)**	UC-4.1 Ability to select a communication style in Russian depending on the purpose and terms of the partnership; to adapt speech, communication style and body language to interaction situations
		UC – 4.2 Ability to conduct business correspondence in Russian, taking into account the stylistic features of formal and informal letters
		UC-4.3 Ability to conduct business correspondence in a foreign language, taking into account the stylistic features of formal letters and sociocultural differences
		UC-4.4 Ability to translate formal and professional texts from a foreign language into Russian, from Russian into a foreign language for personal purposes
		UC-4.5 Ability to speak in public in Russian, to give their speech taking into account the target audience and the purpose of communication
		UC-4.6 Ability to orally present the results of their activities in a foreign language, to keep the conversation going during their discussion
Intercultural interaction	**UC-5. Ability to perceive intercultural diversity of society in socio-historical, ethical and philosophical contexts**	UC-5.1. Ability to demonstrate a tolerant perception of social and cultural differences, respectful and careful attitude towards historical heritage and cultural traditions
		UC-5.2. Ability to find and use the information necessary for self-development and interaction with other people about the cultural characteristics and traditions of various social groups
		UC-5.3. Ability to show in their behavior a respectful attitude towards the historical heritage and sociocultural traditions of various social groups, based on knowledge of the stages of the historical development of Russia in the context of world history and cultural traditions of the world
		UC-5.4. Ability to consciously choose value guidelines and civic position; to discuss and solve problems of ideological, social and personal nature
		UC-5.5 In social and professional communication, ability to take into account the historical heritage and sociocultural traditions of various social groups, ethnic groups and faiths, including world religions, philosophical and ethical teachings
Self-organization and self-development (including self protection)	**UC-6. Ability to manage their time, build and implement a trajectory of self-development based on the principles of lifelong education**	UC-6.1 Ability to use time management tools and methods when performing specific tasks, projects, and achieving goals in hand
		UC-6.2 Ability to identify priorities for their own activities, personal development and professional growth
		UC-6.3 Ability to assess the requirements of the labor market and the supply of educational services to build a trajectory for their own professional growth

		UC – 6.4 Ability to build a professional career and determine a professional development strategy
	UC-7. Ability to maintain the proper level of physical fitness to ensure full social and professional activities	UC – 7.1 Ability to select health-saving technologies to maintain a healthy lifestyle, taking into account the physiological characteristics of the body and the conditions for implementing professional activities
		UC-7.2 Ability to plan their working and free time for the optimal combination of physical and mental stress and ensuring performance
		UC-7.2 Ability to plan their working and free time for the optimal combination of physical and mental stress and ensuring performance
Life safety	**UC-8. Ability to create and maintain safe living conditions in everyday life and professional activities to preserve the natural environment, ensure sustainable development of society, including in the event of the threat and occurrence of emergencies and military conflicts**	UC-8.1 Ability to analyze the factors of the harmful influence of environmental elements (technical means, technological processes, materials, buildings and structures, natural and social phenomena)
		UC – 8.2 Ability to identify hazardous and harmful factors within the framework of the activities carried out
		UC – 8.3 Ability to identify problems related to safety violations in the workplace; to offer measures to prevent emergency situations
		UC - 8.4 Ability to explain the rules of behavior in the event of emergencies of natural and man-made origin; to provide first aid, to describe ways to participate in recovery activities
		UC 8.5 Ability to identify negative factors that can cause harm to the natural environment and sustainable development of society, including those leading to emergencies and military conflicts
Economic culture including financial literacy	**UC-9. Ability to make informed economic decisions in various areas of life**	UC-9.1. Understanding of the basic principles of the functioning of the economy and economic development, the goals and forms of state participation in the economy
		UC-9.2. Ability to apply personal economic and financial planning methods to achieve current and long-term financial goals, to use financial tools to manage personal finances (personal budget), to control their own economic and financial risks
Civic position	**UC-10. Ability to form an intolerant attitude towards manifestations of extremism, terrorism, corrupt behavior and counteract them in professional activities**	UC-10.1. Ability to analyze the current legal norms that ensure the fight against extremism, terrorism, corruption, as well as ways to prevent them and create an intolerant attitude towards them
		UC-10.2. Ability to plan, organize and conduct events that ensure the formation of citizenship, prevention of corruption, counteracting extremism and terrorism.
		UC-10.3. Ability to comply with the rules of public interaction that contribute to the effective implementation of measures to counter extremism, terrorism, and intolerance towards corruption
Using artificial intelligence systems	**UC-11. (UC-1 REU - use of artificial intelligence systems)**	UC-11.1. (UC-1.3 REU) Ability to apply and adapt legal and ethical norms and national and international standards in the field of artificial

	Ability to plan and organize their activities in the digital space, taking into account the legal and ethical standards of interaction between humans and artificial intelligence and information security requirements	intelligence and related fields to solve professional problems in the face of changing socio-economic conditions

3.2. General professional competences (GPC) and their indicators

Competence	Competence indicator
GPC-1. Ability to apply natural science and general engineering knowledge, methods of mathematical analysis and modeling, theoretical and experimental research in professional activities	GPC-1.1.Understanding of basic mathematics, physics and computer science
	GPC-1.2.Ability to formulate solutions to standard professional problems using natural science and general engineering knowledge
	GPC-1.3.Ability to apply methods of theoretical and experimental research of objects in professional activities.
GPC-2. Ability to understand the principles of operation of modern information technologies and software, including domestically produced ones, and to use them in solving professional problems	GPC-2.1.Ability to consider modern information technologies and methods of their use in solving professional problems.
	GPC-2.2.Ability to analyze modern information technologies and software, including domestically produced ones, to solve professional problems.
	GPC-2.3.Ability to use the necessary information technologies and software, including domestically produced ones, when solving problems of professional activity.
GPC-3. Ability to solve standard problems of professional activity on the basis of information and bibliographic culture using information and communication technologies and taking into account the basic requirements of information security	GPC-3.1.Understanding of the principles of information and bibliographic culture, methods and means of solving standard problems of professional activities using information and communication technologies and taking into account basic information security requirements.
	GPC-3.2.Ability to solve standard problems of professional activity on the basis of information and bibliographic culture using information and communication technologies and taking into account the basic requirements of information security.
	GPC-3.3.Ability to use methods of searching and analyzing information to prepare documents, reviews, abstracts, reports, publications based on information and bibliographic culture, taking into account compliance with copyright and information security requirements.
GPC-4. Ability to participate in the development of standards, norms and regulations, as well as technical documentation related to professional activities	GPC-4.1.Ability to analyze the basic standards to prepare technical documentation at various stages of the life cycle of an object of professional activity.
	GPC-4.2.Ability to apply standards, norms, rules and technical documentation when solving professional problems
	GPC-4.3. Participation in the preparation, layout, execution of regulatory and technical documentation addressed to other specialists
GPC-5. Ability to install software and hardware for information and automated systems	GPC-5.1.Ability to consider methods of connecting, installing and testing hardware, firmware and software for information and automated systems
	GPC-5.2.Ability to apply systems and application software installation techniques for information and automation systems
	GPC-5.3.Ability to connect, install and test hardware, firmware and software

GPC-6. Ability to develop business plans and technical specifications for equipping departments, laboratories, offices with computer and network equipment	GPC-6.1.Ability to consider the principles of formation and structure of business plans and technical specifications for equipping departments, laboratories, offices with computer and network equipment Ability to consider the types and composition of computer and network equipment for equipping departments, laboratories, offices
	GPC-6.2.Participation in the development of business plans and drawing up technical specifications for equipping departments, laboratories, offices with computer and network equipment
	GPC-6.3. Participation in the development of technical specifications
GPC-7. Ability to participate in setting up and adjusting software and hardware systems	GPC-7.1.Understanding of methods of setting up and adjusting software and hardware systems
	GPC-7.2.Participation in setting up, adjusting and testing software and hardware systems
GPC-8. Ability to develop algorithms and programmes suitable for practical application	GPC-8.1.Ability to consider major programming languages, operating systems and shells, modern software development environments
	GPC-8.2.Ability to compile algorithms, to write programmes suitable for practical application
	GPC-8.3.Ability to apply debugging and testing methods for programme performance
GPC-9. Ability to master techniques for using software to solve practical problems.	GPC-9.1.Ability to compare methods for using software to solve practical problems
	GPC-9.2.Ability to analyze technical documentation on the use of a software tool, to select the necessary software functions to solve a specific problem, to prepare initial data, to test the software tool
	GPC-9.3.Ability to use software to solve a specific practical problem
GPC-10 (GPC-2 REU). Ability to solve problems in professional activities based on information and bibliographic culture, digital technologies and artificial intelligence systems	GPC-10.1 (GPC-2.1 REU) Ability to select, apply and adapt research methods to solve professional problems using artificial intelligence systems

3.3. Professional competences (PC) and their indicators 3

Professional task	Focus of professional activity or study field	Competence	Competence indicator	Basis for competence inclusion in the educational programme
Task type of professional activity: project				
Collecting and analyzing detailed information to formalize the subject area of the	Computer and automated systems software	PC-1. Ability to design intelligent software to solve practical problems	PC-1.1. Ability to design software components with elements of artificial intelligence	PS06.001 «Programmer»

project and requirements of customer users, interviewing key employees of the customer. Forming and analyzing requirements for software for computer technology and automated systems using elements of artificial intelligence. Modelling of applied and information processes. Drawing up technical economic justification of design solutions and terms of reference for developing software for computer technology and automated systems using elements of artificial intelligence. Designing information systems by type of provision. Programming applications, creating prototypes of software for computer technology and automated systems using elements of artificial intelligence.			PC-1.2. Ability to create implementation options for software components based on an analysis of the requirements	
		PC-2 Ability to use artificial intelligence systems to solve problems of analysis, forecasting, planning, synthesis and decision making	PC-2.1 (PC-3.1 REU) Ability to select methods for solving problems using artificial intelligence systems PC-2.2 (PC-3.2 REU) Ability to solve problems using artificial intelligence systems	PC-3 CBM REU
		PC-3 Ability to use artificial intelligence systems based on neural network models and methods	PC-3.1 (PC-5.1 REU) Ability to evaluate and select artificial neural network models and tools to solve the task in hand	PC -5 CBM REU
		PC-4 Ability to use one or more end-to-end digital AI sub-technologies	PC-4.1 (PC-8.1 REU) Ability to solve applied problems and participate in the implementation of projects in the field of end-to-end digital subtechnology “Computer Vision”	PC -8 CBM REU

			PC-4.2 (PC-8.2 REU) Ability to solve applied problems and participate in the implementation of projects in the field of end-to-end digital subtechnology "Natural Language Processing"	
Task type of professional activity: engineering and manufacturing				
Carrying out work on installation and configuration of software for computer equipment and automated systems. Keeping technical documentation. Initial training and consulting users by on issues of operating soft-ware for computer tech nology and automated systems using elements of artificial intelligence. Technical maintenance of information systems in the process of their operation.	Computer and auto-mated systems soft-ware	PC-5 Participation in the process of creating artificial intelligence systems at various stages of the life cycle as an expert and key user	PC-5.1 (PC-2.2 REU) Ability to conduct testing and pilot operation of artificial intelligence systems	PC-2 CBM REU
		PC-6 Ability to collect and prepare data for artificial intelligence systems	PC-6.1 (PC-6.1 REU) Ability to search for data in open sources, specialized libraries and repositories	PC-6 CBM REU
			PC-6.2 (PC-6.2 REU) Ability to prepare and label structured and unstructured data for machine learning	

4 DOCUMENTS ON THE CONTENT AND MANAGEMENT OF TEACHING AND LEARNING WITHIN THE BACHELOR'S DEGREE PROGRAMME IN THE STUDY FIELD 09.03.01 Informatics and Computer Engineering

In accordance with the article 2 of the Federal Law of the Russian Federation dated 29 December 2012 no. 273-FZ "On Education in the Russian Federation" and the Federal State Educational Standard of Higher Education in the relevant study field, the content and management of teaching and learning within the basic professional educational programme is regulated by the curriculum, academic schedule, programmes of academic disciplines (modules), programmes of academic and on-the-job trainings, other materials that ensure the quality of student training, as well as assessment and methodological materials.

4.1. Academic schedule

The academic schedule reflects the terms and periods of completing the stages of the Bachelor's degree programme in each year of study: theoretical training, examination sessions, academic and on-the-job trainings, State Final Certification and vacations.

The academic schedule is given in Annex 1.

4.2. Curriculum within the Bachelor's degree programme

The curriculum determines the list and sequence of disciplines, academic and on-the-job trainings, interim assessment and State Final Certification, their workload in ECTS and academic hours, distribution of lectures, practical and laboratory classes, amount of face-to-face and individual work of students, as well as a list of competences formed on completion of the curriculum.

The curriculum is given in Annex 2.

4.3. Programmes of academic disciplines

The programmes of academic disciplines determine the aims of the discipline, place of the discipline in the structure of the basic professional educational programme, learning outcomes in the discipline correlated with the planned results of the basic professional educational programme (competences and their indicators), structure and content of the discipline, educational technologies used in managing face-to-face and individual work of students, educational and methodological support of individual work of students, educational-methodological and material-technical support of the discipline.

The programmes of academic disciplines are given in Annex 3.

4.4. Programmes of academic and on-the-job trainings and assessment tools

In accordance with the Federal State Educational Standard of Higher Education in the study field 09.03.01 Informatics and Computer Engineering, part 2 "Practical trainings" within the basic professional educational programme (Bachelor's degree programme) is compulsory and focused on the professional and practical training of students. During practical trainings students test the knowledge and skills gained within theoretical disciplines, acquire practical skills, gain professional experience and contribute to the integrated development of universal, general professional and professional competences of students.

The part "Practical trainings" includes academic and on-the-job trainings.

On-the-job trainings are conducted at the leading enterprises and in organizations with which the University concluded agreements on conducting various types of practical training and at University departments.

For students with disabilities, the choice of places for having practical training depends on their state of health and accessibility requirements.

4.4.1. Programmes of academic trainings and assessment tools

Within the basic professional educational programme, the following types of academic training are provided:

a) Academic (Introductory) Training – 2nd semester; 3 ECTS.

b) Academic (Operational) Training –4semester; 6 ECTS.

The programmes of academic trainings and assessment tools are given in Annex 4.

4.4.2. Programmes of on-the-job trainings and assessment tools

Within the basic professional educational programme, the following types of on-the-job training are provided:

a) On-the-Job (Technological) Training – 6th semester, 3ECTS.

b) On-the-Job (Operational) Training – 8th semester, 3 ECTS.

c) On-the-Job (Process Design) Training – 8th semester, 6 ECTS.

The programmes of on-the-job trainings and assessment tools are given in Annex 5.

4.5. Programme of the State Final Certification and assessment tools

The programme of the State Final Certification and assessment tools of the State Final Certification for graduates of basic professional educational programme in the study field 09.03.01 Informatics and Computer Engineering, Bachelor's degree programme "Applied Artificial Intelligence" are given in Annex 6.

4.6. Competence-based model for the graduate of the educational programme

The documents regulating the content and management of teaching and learning within the Bachelor's degree programme were developed on the basis of the competence-based model for the graduate of the educational programme in the study field 09.03.01 Informatics and Computer Engineering, Bachelor's degree programme "Applied Artificial Intelligence", approved by the Methodological Council of the university (Annex 7).

4.7. Programme and schedule of mentoring

The programme and schedule of mentoring are developed in accordance with the Federal Law of the Russian Federation no. 304-FZ dated 31 July, 2020. The programme and schedule of mentoring determine the aims and objectives of mentoring, principles of its organization, forms and conditions of its implementation (Annex 8).

5 AVAILABLE RESOURCES WITHIN THE BACHELOR'S DEGREE PROGRAMME IN THE STUDY FIELD 09.03.01 Informatics and Computer Engineering

The resources are provided for the basic professional educational programme on the basis of the requirements for implementing the Bachelor's degree programme determined by the Federal State Educational Standard of Higher Education in the study field 09.03.01 Informatics and Computer Engineering.

5.1. Material-technical and methodological-information support within the Bachelor's degree programme

The university has facilities and resources (premises and equipment) for implementing the Bachelor's degree programme within Block 1 "Disciplines (modules)" and Block 3 "State Final Certification" in accordance with the curriculum, which correspond to the current sanitary and fire safety rules and regulations.

The premises include classrooms for lectures and classes which are provided for by the Bachelor's degree programme are equipped with technical teaching aids, which are determined in the programmes of disciplines.

The premises for individual work of students are provided with computer equipment with access to the Internet and the digital learning environment of the university.

The university has the necessary set of licensed and free software, including nationally produced (it is determined in the programmes of disciplines and subject to updating if necessary).

Each student during the entire period of study is provided with individual unlimited access to the digital learning environment of the university from any place with the Internet connection both on and off campus.

The digital learning environment of the universities:

– provides access to the curricula, programmes of academic disciplines (modules) and practical trainings, electronic publications and digital learning and teaching materials specified in the programmes;

– forms an electronic portfolio of students, as well as stores student academic papers, reviews and assessments.

In the case of implementing the Bachelor's degree programme using e-learning, distance learning technologies, the digital learning environment additionally:

– tracks teaching and learning, records results of current and interim assessment;

– serves as a platform for conducting all types of classes and assessing learning outcomes, which are provided using distance learning technologies;

– enables interaction between the participants of teaching and learning, including synchronous and (or) asynchronous interaction via the Internet.

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

The functioning of the digital learning environment complies with the legislation of the Russian Federation

The library stock is filled with printed publications at the rate of at least 0.25 copies of each publication specified in the programmes of disciplines (modules) and practical trainings per student from among persons simultaneously mastering the relevant discipline or undergoing the relevant practical training.

Students are provided with access (remote access) to modern professional databases and information reference systems, which are determined in the programmes of disciplines (modules) and subject to updating (if necessary).

Students from among persons with disabilities are provided with printed and (or) digital learning materials in forms adapted to their disabilities.

5.2. Staffing within the Bachelor's degree programme

The Bachelor's degree programme is implemented by teaching staff of the university, as well as by persons involved in running the programme under the contract.

The qualifications of teaching staff of the university correspond to the qualification characteristics established in qualification catalogues and (or) professional standards (if any).

At least 60% of teaching staff of the university and persons involved in implementing the Bachelor's degree programme (in terms of integer values) conduct scientific, educational, methodological and (or) practical work corresponding to the study field of the disciplines taught.

At least 5% of teaching staff of the university and persons involved in implementing the Bachelor's degree programme (in terms of integer values) are managers and (or) employees from other organisations, the activities of which are related to the study field of the basic professional educational programme (who have worked for at least three years in the profession): OOO Scientific Technical Enterprise "Cryptosoft", AO "I-Teco".

At least 50% of teaching staff of the university and persons involved in implementing the Bachelor's degree programme (in terms of integer values) have an academic degree (including an academic degree obtained in a foreign state and recognized in the Russian Federation) and (or) an academic title (including an academic title obtained in a foreign state and recognized in the Russian Federation).

In accordance with the study field of the basic professional educational programme, the graduating department is the Department of Computer Engineering.

5.3. Funding within the Bachelor's degree programme

The Bachelor's degree programme is funded in the amount not lower than the standard values of costs for public services for implementing basic professional educational programmes of higher education (Bachelor's degree programmes) and correcting coefficients to the standard values of costs determined by the Ministry of Science and Higher Education of the Russian Federation.

6 REGULATORY AND METHODOLOGICAL SUPPORT OF THE QUALITY ASSESSMENT SYSTEM OF GRADUATE COMPLETION OF THE BACHELOR'S DEGREE PROGRAMME IN THE STUDY FIELD 09.03.01 Informatics and Computer Engineering

6.1. Mechanism of objective internal and external independent assessment of the quality of teaching and learning and regulatory support of the quality assurance system

The quality of learning and teaching within the Bachelor's degree programme is determined by the *internal assessment* system and *external assessment* system that the university undergoes on a voluntary basis.

Under regular internal assessment of the quality of learning and teaching, the university engages employers and (or) their associations, other legal entities and (or) individuals, including teaching and administrative staff of the university in order to improve the Bachelor's degree programme.

As part of the internal assessment of the quality of learning and teaching, students are provided with the opportunity to assess the conditions, content, organisation and quality of the academic process as a whole and specific disciplines (modules) and practical trainings.

External assessment of the quality of learning and teaching under the Bachelor's degree programme within the state accreditation is carried out to confirm the compliance of teaching and learning under the Bachelor's degree programme with the requirements of the Federal State Educational Standard of Higher Education.

External assessment of the quality of learning and teaching under the Bachelor's degree programme can be carried out within the professional and public accreditation conducted by employers, their associations, as well as authorised organisations, including foreign ones, or authorised national professional and public organisations that are part of international organisations, in order to recognize the quality and competence of students that meet the professional standards and labour market requirements for specialists in the corresponding study field.

The effective functioning of the system for ensuring the quality of student training is determined by the presence of a quality management system (hereinafter referred to as the QMS), which is based on the following external and internal documents:

– standards and recommendations to guarantee the quality of higher education in the European area (ENQA);

– Quality Policy of Penza State University;

– Strategy for ensuring the quality of education of Penza State University for 2016–2020;

– Overarching Development Programme of the university in the sphere of quality for an academic year;

– Regulation no. 987/o "On rating assessment of the activity of research and teaching staff and structural units of Penza State University" dated 15 October, 2016;

– Regulation no. 1289/o "On organizing the Student Commission for Education Quality at University" dated 30 November, 2015;

– University Standard STO PGU 2.12-2018 "State Final Certification within the Basic Professional Educational Programmes of Higher Education (Bachelor's, Specialist's and Master's Degree Programmes)";

– University Standard STO PGU 3.12-2018 "Graduation Thesis within the Basic Professional Educational Programmes of Higher Education (Bachelor's, Specialist's and Master's Degree Pro-grammes)";

– Regulation on learning and teaching materials;

– Regulation on current performance assessment of students within the basic professional educational programmes of higher education (Bachelor's, Specialist's and Master's degree programmes);

– Regulation on sets of assessment tools for the disciplines for current and interim performance assessment of students within the basic professional educational programmes of higher education (Bachelor's, Specialist's and Master's degree programmes);

– Regulation on course projects of students within the basic professional educational programmes of higher education (Bachelor's, Specialist's and Master's degree programmes);

– Regulation on interim performance assessment of students within the basic professional educational programmes of higher education (Bachelor's, Specialist's and Master's degree programmes);

– Regulation on practical trainings of students of Penza State University;

– Regulation on training according to individual curriculum and accelerated learning within the basic professional educational programmes of higher education;

– Regulation on implementing basic educational programmes which contain national security information.

6.2. Assessment and teaching materials for current and interim assessment and final certification of students

In accordance with the Federal Law "On Education in the Russian Federation", assessment of the quality of mastering the basic professional educational programmes of higher education includes current performance assessment, interim performance assessment and state final certification of students.

6.2.1. Sets of assessment tools for current and interim performance assessment

Current and interim performance assessment serve as the main means of providing feedback between teaching staff and students under learning and teaching, which is necessary to stimulate student performance and improve teaching methods.

Current performance assessment is used for checking the assimilation of learning and teaching material and regularly conducted throughout the semester. As a rule, interim performance assessment is carried out at the end of the semester. It may finish both the study of a specific discipline and its section(s). Current and interim performance assessment allow assessing knowledge and skills, as well as competences developed.

The tools of current performance assessment include: interview, colloquium, test, review work, paper, essay and other creative works, oral questioning during classes, reports on laboratory work, calculation and design work, etc.

The tools of interim performance assessment include: pass-fail exam, exam, defending a course project (paper), report (on practical training, research, etc.).

To certify student learning outcomes in accordance with the requirements of the relevant basic professional educational programme of higher education, the university departments develop sets of assessment tools for current and interim performance assessment. The sets include: sample questions and tasks for practical, laboratory and review classes, colloquia, pass-fail exams and exams, tests and computer testing programmes; sample topics of course papers, essays, reports, etc. These assessment tools allow assessing the achievement of learning outcomes within the specific disciplines and development of student competences at any stage of the basic professional educational programme.

The sets of assessment tools for current and interim performance assessment are part of teaching and learning materials for disciplines (modules) and practical training programmes.

6.2.2. State Final Certification within the Bachelor's degree programme

The State Final Certification of students is mandatory and conducted after completing the basic professional educational programme of higher education (Bachelor's degree programme) in the study field 09.03.01 Informatics and Computer Engineering.

The State Final Certification includes the defence of the graduation thesis (Bachelor's thesis), comprising preparation and defence.

The state certification tests are designed to determine the compliance of learning outcomes within the basic professional educational programme of higher education and the requirements of the Federal State Educational Standard of Higher Education, as well as to determine training to perform professional tasks established by the Federal State Educational Standard of Higher Education.

Based on the Procedure for conducting the State Final Certification within the basic professional educational programmes of higher education (Bachelor's, Specialist's and Master's degree programmes) approved by the Order of the Ministry of Science and Higher Education of the Russian Federation dated 29 June 2015 no. 636, requirements of the Federal State Educational Standard of Higher Education, the university developed and approved the regulatory documents for the State Final Certification: University Standard STO PGU 2.12-2018 "State Final Certification within the Basic Professional Educational Programmes of Higher Education (Bachelor's, Specialist's and Master's Degree Programmes)" and University Standard STO PGU 3.12-2018

“Graduation Thesis within the Basic Professional Educational Programmes of Higher Education (Bachelor’s, Specialist’s and Master’s Degree Programmes)”.

The graduating department- Department of Computer Engineering - developed Programme on the State Final Certification on writing and defending graduation theses and assessment tools for the State Final Certification.

On successful completion and defence of the graduation thesis, students should be able to:

– know, understand and fulfil professional tasks of the following type: project and engineering and manufacturing in accordance with the focus of the educational programme;

– perform labour functions, labour activities specified in the professional standard PS06.001 “Programmer” within labour functions identified in 2.4.

Requirements for the graduation thesis **in the study field 09.03.01 Informatics and Computer Engineering (Bachelor’s degree programme “Applied Artificial Intelligence”)**

General provisions

A bachelor's graduation thesis is the result of a student's individual, complex work, including a comprehensive analysis of the subject area on one of the issues of a theoretical or practical nature in accordance with the field of study and the results of its solution. The completed thesis should be an indicator of the student’s acquired system of knowledge and skills necessary for their future professional activity. The graduation thesis is carried out on the basis of theoretical knowledge, practical skills and experience acquired by the student while mastering the educational programme.

The topics of the thesis are developed by leading teachers of the graduating department, taking into account applications from organizations and enterprises involved in the development and operation of computers, complexes, systems and networks, and are approved at a meeting of the department. The topic of the graduation thesis should reflect the main areas and directions of professional activity of graduates.

The content of the graduation thesis is determined by the assignment, but must take into account the requirements of the Federal State Educational Standard of Higher Education to the results of mastering basic professional educational bachelor’s degree programmes and, as a rule, include:

– analysis of the subject area, goal setting and formulation of research objectives, carried out on the basis of a review of scientific and specialized literature, patent studies, as well as generalization of the experience of practitioners;

– theoretical and/or experimental parts, including a description of research methods, techniques and tools, the process of obtaining results, as well as the main content of the work performed by the author;

– analysis of the results obtained, conclusions and recommendations for use in professional activities;

– list of references;

– possible annexes.

The graduation thesis may also reflect sections, the appropriateness of consideration of which is determined by the topic of the work. The content of the thesis should reflect the graduate’s ability to independently solve assigned problems.

The implementation of the graduation thesis is completed by issuing an explanatory note. The explanatory note sets out the main content of the graduation thesis, which is illustrated with the necessary diagrams, drawings, graphs and tables.

The graduation thesis is printed out on one side of white A4 sheet of paper in accordance with the requirements established by the current GOSTs for drawing up text documents, design and technological documents, etc.

The recommended volume of bachelor's graduation thesis is at least 40 pages of printed text.

The printed version of the graduation thesis should be drawn up in accordance with all the requirements, signed by the student and, if necessary, by consultants.

The electronic version of graduation theses, except for those containing information constituting state or commercial secrets, is provided in the form of one file in doc, docx or rtf format for verification using the "Antiplagiat. VUZ" system for the presence of plagiarism in the thesis (borrowing of other people's texts, quoting in the original and in translation of published works without indicating the name of the author and the source of borrowing or indicating the name of the author whose work is used and the source of borrowing, but in a large volume, not justified by the purpose of citation and reducing the level of independence of the completed graduation thesis). The originality of the text of the graduation thesis must be at least 50%.

After completing the graduation thesis, the graduating department organizes the defense of the thesis.

The defense of the graduation thesis may be accompanied by a computer presentation, which contains information about the decisions made in the thesis, as well as illustrations.

The report on the results of the graduation thesis takes 7 - 10 minutes. The report should reflect the goal and objectives of the thesis, main decisions, and conclusions on the work.

7. DESCRIPTION OF THE UNIVERSITY SOCIAL AND CULTURAL ENVIRONMENT SECURING THE DEVELOPMENT OF STUDENT GENERAL COMPETENCES

7.1. Characteristics of the environment significant for personal education and general competences development:

The environment of an educational institution is considered as a territory and event-related limited set of influences and conditions for the formation of a personality. It acts as a factor in the internal and external psychosocial, social and cultural development of a personality.

The characteristics of the academic environment of Penza State University required for forming the competences are as follows:

– Environment built on values, norms and moral principles of Russian society;

– Legal environment reinforced by the Constitution of the Russian Federation, laws and by-laws governing teaching, learning and youth affairs, University Charter and Internal Regulations;

– Highly intellectual environment, which contributes to developing student innovation potential and engaging young and talented persons in basic science and applied science;

– Human friendly environment supported by modern information and communication technologies;

– Environment of communication and tolerance for interaction of students, teaching, research and administrative staff;

– Environment, which is open to cooperation with employers, various social institutions, including foreign ones;

– Environment focused on psychological comfort, healthy lifestyle, which is rich in events and traditions.

7.2. Aims and objectives of teaching, learning and mentoring within the Bachelor's degree programme:

The primary aim of teaching, learning and mentoring at Penza State University is to create conditions for personal and professional development of students, contributing to their effective adaptation in the social and cultural environment of the Russian and international community: personality development of the student, who will be a highly educated specialist with deep professional knowledge, skills and abilities, who has humanistic outlook, stable moral and civic values, patriotism, civic consciousness, respect for the memory of defenders of their homelands, respect for law and order, respect for working people and older people, mutual respect, care for cultural heritage and traditions of peoples, care for nature and environment.

This aim is achieved by solving the following tasks::

– Creating an environment for creative, intellectual, cultural communication, conducive to self-determination, self-affirmation and self-fulfillment of students;

– Ensuring the relationship of learning, teaching, research and mentoring;

– Improving conditions to foster tolerance and aesthetic, legal and political culture among students, creating prerequisites to broaden a humanistic outlook and promote active citizenship;

– Developing creative associations of students to unlock personal and creative potential of young people;

– Improving student self-government by providing them with interaction, leadership and management skills, self-esteem and self-confidence;

– Forming a health-preserving educational environment through promoting physical culture as an important factor in the harmonious development of the personality, high professional and labour activity, healthy lifestyle, work productivity and creative longevity;

– Creating an information environment that promotes the advancement of student creative abilities, communication culture through exchanging socially significant information;

– Building a system of psychological support for students to create a comfortable learning environment at the university;

– Forming corporate identity of students, teaching, research and administrative staff;

– Familiarising with national and world history and culture, mastering communicative skills.

7.3. Focus of mentoring and awareness-raising at the Department

77.3.1. Focus areas of mentoring at the department:

– Activities aimed at personal development, self-determination and socialisation of students;

– Activities targeted at promoting patriotism and citizenship among students;

– Activities directed at inspiring respect for the memory of defenders of their homeland;

– Activities directed at inspiring respect for working persons and older persons in students;

– Activities directed at inspiring respect for law and order in students;

– Activities aimed at developing a caring attitude to cultural heritage and traditions of the multinational people of the Russian Federation among students;

– Activities targeted at fostering spiritual and moral values among students and familiarising them with rules and norms adopted in Russian society in the interests of the person, family, society and state;

– Activities aimed at adopting a caring attitude to nature and environment among students;

– Activities directed at preventing destructive behaviour of students.

7.3.1. Focus areas of awareness-raising in the work of the Department

The **civil area** is the formation of a civil identity among students, manifested as an awareness of belonging to the state, which is significant for young persons, as well as the prevention of extremism and promotion of interethnic tolerance through broadening knowledge, skills and abilities in regulating interethnic and interfaith relations and fostering culture of interpersonal and interethnic relations.

The **spiritual and moral area** is a system of spiritual and moral development of students, which aims at teaching them to focus on such values as person, family, “truth, love, labour, knowledge, culture, native land, Earth (as common home for mankind), peace (as harmony among nations), righteous behaviour and non-violence”.

The **patriotic area** is the creation of conditions for increasing civil responsibility for the state, enhancing consolidation of society to ensure national security and sustainable development of their country, strengthening citizenship in terms of the history and culture of their country, ensuring intergenerational continuity, providing students with proactive attitude, who love their native land and family, and who have a proactive approach to life.

The **cultural and educational area** is the expansion of student outlook, allowing them to find a rightful place in society and make difference for state and people around, development of social responsibility and cultural enlightenment, familiarisation with traditions and history, promotion of respectful for various anniversaries.

The **environmental area** presupposes forming ecological thinking, necessary moral and aesthetic views on nature and place of human as part of nature, scientific understanding of

environmental problems, active life position in environmental protection, rational use of natural resources.

The **physical education area** includes promoting and supporting healthy lifestyle and ensuring health-saving environment, promoting physical culture and sports, holding mass sports events, competitions, preventing and combating smoking, drug and other harmful addictions. At the university it is driven by the physical education system and developed extensive sports facilities providing easy and simple access to sports within the educational and extracurricular process.

The **professional and labour area** means familiarising students with professional activity and related functions in accordance with the study field and qualification level. Professional and labour education involves forming labour motivation, teaching basic principles of building professional career and behaving in the labour market, familiarizing with traditions and values of the professional community, norms of corporate ethics, creative approach to personal development in the chosen professional field, creating conditions for creative and professional self-fulfillment, etc.

7.4. Forms and methods of mentoring

The universities apply traditional and modern forms and methods of teaching and mentoring. They are implemented in various options for organising a specific mentoring process, which combines and integrates aims, objectives, principles, patterns, methods and techniques of teaching and mentoring.

The forms of mentoring are as follows:

– according to the number of participants – individual (person-to-person interaction in the teacher-student system); group (creative teams, sports teams, clubs, hobby groups, etc.), mass (festivals, olympiads, holidays, clean-up events, etc.);

– according to the target audience, participants status, educational opportunities – events, affairs, games, etc.;

– according to the timing of the event – short-term, long-term, traditional;

– according to the type of activity – work, sports, creative, research, social, etc.;

– according to the result of mentoring – socially significant result, information exchange, decision-making.

Classification of mentoring methods

Methods for developing consciousness	**Methods for organising activities and broadening experience**	**Methods for encouraging activity and behaviour**
Conversation, debate, suggestion, instruction, control, explanation, example, clarification, story, self-control, advice, persuasion, etc.	Task, public opinion, pedagogical requirement, assignment, creating educational cases, training, exercise, etc.	Approval, encouragement of social activity, censure, creating cases for success, creating cases for emotional and moral experience, competition, etc.

7.5. Application of educational technologies in the face-to-face and online modes of learning, training and mentoring

The environment for learning, training and mentoring can be created both in the face-to-face and online modes.

The following is applicable:

– relevant traditional, modern and innovative educational technologies (collective creativity; art pedagogy; health saving; inclusive education; portfolio; training; brainstorming; case-study; distance learning, etc.)

– digital educational technologies in online education, e-learning with free access to digital educational content (VR-technologies; artificial intelligence; smart technologies; data mining; big data; gamification; blockchain, etc.).

The technology of student portfolio is implemented in the university digital learning environment within the section "University + Employer". It is designed for interaction of PSU students / alumni with PSU partner employers. This section provides access to current job opportunities, applicants' CVs, as well as information about companies offering internships and trainings.

The technologies of distance learning are used in the face-to-face and online modes of learning, training and mentoring: digital learning environment of Penza State University, video conferencing and webinar services (Zoom, Google Meet, Skype, etc.), social network Vkontakte services.

The technologies of digital learning are used in e-learning with free access to digital educational content: e-versions of teaching materials are posted in the digital learning environment of Penza State University; an online course platform online.pnzgu.ru is operated.

7.6. Priority students activities at the university

The types of student activities in the learning, teaching and mentoring system include:

– Project activity;

– Teaching and research;

– Volunteering;

– Social activity, cultural activity, creativity, leisure activity;

– Student and youth international cooperation;

– Activity for arranging and holding events of various focus (civil, patriotic, research, social, cultural, sports, etc.);

– Other activities of students.

7.6.1. Activities and types of student associations

A student association is a voluntary student association at the university, which is created for self-realization and self-development of students, as well as joint solution of various issues and improvement of student life.

The student association is built on the principles of voluntary participation and freedom of choice, partnership and equality, transparency and openness.

The types of student associations by the areas of activity are as follows:

– *Research* (Research Society, Co-Working Centre, etc.);

– *Creativity* (Club of the Cheerful and Sharp-Witted (KVN), Kontrabass Contemporary Dance Theater, Youth Student Choir, Aquamarine Contemporary Dance Theatre, Avenue Vocal Studio, Kirillitsa Student Theatre, Good People Folk Song Ensemble, Fashion Theatre, S-Dance PSU studio);

– *Sports* (Berkut Student Sports Club, PSU Sports Club);

– *Information* (Film and Photo Studio, Student View Newspaper, etc.);

– *Professional* (Flammeous Multidisciplinary Team, Record Multidisciplinary Team, Crystal Multidisciplinary Team, Adrenaline Multidisciplinary Team, etc.);

– *Intercultural* (International Alumni Club, etc.);

– *Others*

7.6.2. Key student communities / associations at the faculty (institute):

Student Government Council of the Faculty of Computer Engineering; Trade Union Bureau of the Faculty of Computer Engineering; Student Research Society of the Faculty of Computer Engineering.

7.7. Annual events and affairs

1. Civil area

(UC-4, UC-5,UC-8)

The activities include:

- Participating in the “Day of Young inventor”, in watching procedure “Fair election”.
- Participating in the training from Consultant Plus company “Presentation rules and mistakes”.
- Meeting with applicants enrolled in the 1st year.

2. Spiritual and moral area

(UC-1, UC -2, UC -3, UC -4)

The activities include:

- Participating in annual research conference.
- Preparing and participating in the “Day of the Faculty”.
- Participating in annual inter-university conferences.
- Excursions to the University museum, visits to the theatre, the cinema.
- Meetings with mentors (according to the general schedule).
- Preparing and participating in the inter-faculty contest “First-year student”.
- Preparing and participating in the inter-faculty KVN contest.

3. Patriotic area

(UC -1, UC -2, UC -4, UC -5)

The activities include:

-Participating in All-Russian contest of students’ works.

- Participating in the inter-faculty contest “Hey, guys!”
- Organizing and holding the event dedicated to the Victory Day.
- Holding congratulatory events dedicated to memorable dates.
- Participating in demonstrations, parades and other events implementing the principle of patriotism (Day of Accord and Reconciliation, Independence Day, Defender of the Homeland Day, etc.)

4. Cultural and educational area

(UC -1, UC -4)

The activities include:

- Visiting exhibitions and presentations;
- Attending theatres, museums;
- Contest of student works.

5. Environmental area

(UC-7, UC -8)

The activities include:

- Participating in the event “Day of the Sura”.
- Participating in All-Russian clean-up day “Green Russia”.
- Participating in city clean-ups.

6. Physical education area

(UC -7, UC -8)

The activities include:

- Participating the contest “My and my family’s health are the health of the nation”.
- Participating in University, city, region, All-Russian sport events and competitions.
- Participating in the event dedicated to the World Aids Day.
- Preparing and passing GTO standards.

7. Professional and labour area

(UC -6, UC -9, UC -10)

The activities include:

- Event for first-year students “Day of Knowledge”.

- Contest “The best academic group”.
- Day of PSU enterprise.

7.8. Forms of presenting students achievements and methods of assessing competences development within extracurricular activities

Focus	Form	Assessment method
Civil area	Project, campaign, competition, forum, review, report, conference, round table discussion, debate, etc.	Expert review, assessment harmonisation, review, peer review, self-analysis, character reference, diploma, certificate, etc.
Spiritual and moral area	Festival, project, concert, stage performance, contest, creative report, etc.	Review, self-evaluation, self-analysis, diploma, certificate, etc.
Patriotic area	Festival, concert, exhibition, forum, etc.	Review, self-evaluation, self-analysis, character reference, diploma, certificate, etc.
Cultural and educational area	Campaign, rally, competition, contest, forum, report, performance, festival, exhibition, trip, etc.	Review, self-evaluation, self-analysis, character reference, questioning, etc.
Environmental area	Campaign, rally, competition, forum, trip, etc.	Expert review, self-assessment, questioning, self-analysis, character reference, etc.
Physical education area	Campaign, hike, rally, competition, contest, trip	Refereeing, self-analysis, review, certificate, diploma
Professional and labour area	Project, exhibition, fair, excursion, contest, topic stand, trip	Review, assessment harmonization, testing, questioning, self-analysis, character reference

7.8.1. Ways of recognising and encouraging extracurricular activities

The ways of recognising student achievements and social involvement are: achievements portfolio, volunteering record sheets, electronic journal, etc.

The ways of encouraging student extracurricular activities are: certificates, letters of gratitude, entries on the Board of Honour, diplomas, expression of gratitude, presentation of experience and findings (seminar, exhibition, publication, etc.), personal scholarships, one-time cash payments, valuable gifts, funding of participation in olympiads, forums, competitions, etc.

7.9. Infrastructure of the university

The university has modern facilities for teaching, learning and mentoring of students.

Modern technical means of teaching and learning made by the leading world manufacturers are used in the academic process. An LED screen, video projection equipment for 3D mapping, a wide range of sound and lighting equipment for events of various formats are used. There are equipped premises for mentoring.

Cinema and Concert Hall (Penza, 40 Krasnaya st., building 5).

The Cinema and Concert Hall is designed for 384 seats, provided with modern equipment, high-speed Internet, Wi-Fi technology. High-class sound equipment by JBL and various microphones by Sennheiser, Shure, dbTechnologies make it possible to sound concerts and

performances. A motorised screen, a high- resolution and high-brightness NEC video projector for watching movies and organising video conferencing are also installed.

Lighting control using the Martin Light Jockey interface, Martin and Silver Star architectural lighting fixtures and full rotation projectors, fog generators allow highlighting locations on the stage and in the hall.

Event Hall (Penza, 37 Lermontova st., building 11).

The Event Hall is designed for 420 seats, provided with modern equipment and Wi-Fi technology. Hi-Fi audio equipment, including line arrays and a subwoofer by B&G, a digital mixing console by Allen & Heath, radio microphones by Sennheiser make it possible to sound concerts and performances. Lighting equipment, consisting of full rotation devices, effects projectors and architectural lighting fixtures by Silver Star and Involight, smoke generators allow highlighting locations on the stage.A high- resolution and high-brightness NEC video projector and a motorised screen for watching movies and organising video conferencing are also installed.

A high- resolution and high-brightness NEC video projector and a motorised screen for watching movies and organising video conferencing are also installed.

Assembly Hall (Penza, 68 Chkalova st., building 9).

The Assembly Hall is designed for 288 seats, provided with high-speed Internet and Wi-Fi and equipped with a sound system by JBL, radio microphones by dBtechnologies, a video projector by Sanyo and a motorised screen to arrange seminars, lectures and meetings with students.

Temp Sports and Culture Centre (Penza, 85 Sverdlova st.).

The Temp Sports and Culture Centre is designed for 3500 seats. A modular stage with an area of 100 m2 and powerful sound-amplifying equipment, consisting of line arrays, subwoofers and monitors by B&G, a professional mixing console by Allen & Heath, radio microphones by Sennheiser and Invoton allow organising the large-scale cultural events.

The covered arena with an area of 2000 m2 with a combined coating of PVC tiles and artificial grass allows organising the mass sports events. Climbing walls, mobile interactive playgrounds and sports equipment allow operating the student clubs on tourism, football, tennis, etc.

Co-Working Centre (Penza, 85 Sverdlova st.).

The Co-Working Centre is designed for 50 seats. It is equipped with high-speed Internet, Wi-Fi, an interactive Smart board kit, a motorised screen and an Epson projector for conducting trainings, educational seminars, video conferences with students.

Impulse Training Centre (Penza, 85 Sverdlova st.).

The Impulse Training Centre is equipped with the Internet, Wi-Fi, a projector and a motorised screen, offices for self-presentations, master classes and trainings. The office for psychological relief, consultations and psychological assessment is equipped with a multipsychometer. A helpline operates for targeted assistance to students in various psychological situations.

Recording Studio (Penza, 40 Krasnaya str., building 5).

The Recording Studio is designed for sound recording and processing. The technical equipment includes a condenser studio microphone by Neumann, professional headphones by Sennheiser and Shure, and active acoustic studio monitors by Yamaha. Sound processing is carried out using studio controllers by Berlinger and Akai.

Film and Photo Studio (Penza, 40 Krasnaya st., building 3).

The Film and Photo Studio is designed for producing and processing photo and video content and covering cultural and sports events, seminars and trainings. It is equipped with a filmmaking complex, professional cameras by Sony and Canon with a wide range of lenses. It is provided with modern studio lighting and an automated roll-up background lifting system. For rendering photo and video content, powerful computers with increased capacity are used.

Student Printing House (Penza, 57 Chkalova st., residence hall 1).

The Student Printing House is intended for developing design layouts and printing information boards, booklets, business cards, posters. It is equipped with a large-format plotter by Epson, printers and MFPs with colour laser printing by Xerox. It is provided with special cutters, bookbinding machines and a laminator for making notebooks and sketchbooks.

7.9.1. Infrastructure of the universities for implementing the basic professional educational programme

To ensure teaching and learning, the university is constantly developing its infrastructure. There are 19 academic buildings in a single architectural style, located in an ecologically clean area of the city. The infrastructure of the university includes facilities for teaching, learning, mentoring and extracurricular activities.

Culture facilities

Event hall and performance venues	– Temp Sports and Culture Centre: Penza, 85 Sverdlova st.; - Cinema and Concert Hall: Penza, 40 Krasnaya st., building 5; – Event Hall: Penza, 68 Chkalova st., building 9; - Event Hall: Penza, 3 Lermontova st., building 10; – Event Hall: Penza, 37 Lermontova st., building 11; – Dance Hall: Penza, 57 Chkalova st., residence hall 1; – Dance Hall: Penza, 2A Marshala Krylova st., residence hall 2; – Dance Hall: Penza, 26A Lermontova st., residence hall 4. - Dance Hall: Penza, 40 Krasnaya st., building 3; - Dance Hall: Penza, 68 Chkalova st., building 9;
Museums and libraries	– Information and Exhibition museum of the University History: Penza, 40 Krasnaya st., building 1; − Polytechnic museum: Penza, 40 Krasnaya st., building 3: − Museum of computing engineering: Penza, 40 Krasnaya st., building 7a; − Anatomical Museum: Penza, 3 Lermontova st., building 10; – Pedagogical Education History Museum: Penza, 37 Lermontova st., building 11; - Museum of Entertaining Sciences: Penza, 37 Lermontova st., building 13; − Geological museum: Penza, 37 Lermontova st., building 15; − Zoological museum: Penza, 37 Lermontova st., building 15. Research library: – E-Library: Penza, 40 Krasnaya st., building 1, office 308; − Engineering library: Penza, 40 Krasnaya st., building 3;

	− Social, Humanities and Fiction Library: Penza, 68 Chkalova st., building 9; − Foreign literature library: Penza, 68 Chkalova st., building 9; − library: Penza, 37 Lermontova st., building 14; − Medical library and reading room: Penza, 3 Lermontova st., building 10; – Pedagogical Institute Main Library: Penza, 37 Lermontova st., building 11; − library and reading room: Penza, 37 Lermontova st., building 12; − library and reading room: Penza, 37 Lermontova st., building 13; − library and reading room: Penza, 37 Lermontova st., building 15; − Reading room for engineering literature: Penza, 40 Krasnaya st., building 7; - Periodicals Reading Room: Penza, Penza, 68 Chkalova st., building 9; – E-Reading Room: Penza, 68 Chkalova st., building 9; –
Sports and health facilities	Polytechnic Open Sports and Recreation Stadium: Penza, 40 Krasnaya st.; – Temp Sports and Culture Centre: Penza, 85 Sverdlova st.; - Skiing Centre: Penza, 46B Krasnaya st.; – Skiing Centre: Penza, 37 Lermontova st.; – Swimming Pool: Penza, 37 Lermontova st., building 14; – Gym: Penza, 37 Lermontova st., building 14; − Gym: Penza Region, Serdobsk, 285 Lenina st.; - Weightlifting Sports Hall: Penza, 40 Krasnaya st.; – Athletics Sports Hall: Penza, 40 Krasnaya st.; – Playing Sports Hall: Penza, 37 Lermontova st., building 14; − Workout room: Penza, 46 Krasnaya st.; – Workout Rooms (men's room and women's room): Penza, 2A Marshala Krylova st., residence hall 2; − Workout Room (for men and women): Penza, 58 Mira st., residence hall 3; - Workout Room (men's room): Penza, 26A Lermontova st., residence hall 4; − Workout Room: Penza, 14 Lermontova st., residence hall 6. − Recreation centre "Polytechnic": Penza region, Bessonovskiy region, Podlesny village; − sports and recreation camp "Sputnik": Penza, Zheleznodorozhny district, Pobeda village.

7.10. Social and cultural environment. Networking with organisations and institutions

The Penza Region as a multinational, multi-religious region with a rich history and cultural heritage is a platform for pursuing the goals of state cultural policy, which determines the stages, methods and means of engaging the population, particularly students, in the social and cultural environment.

Today in Penza there are 219 culture and art sites, memorial structures, 4 regional theatres, more than 20 museums and museum complexes, 18 public libraries, more than 10 concert halls. Students explore them starting from the first days of studying at the university, which enables them to engage in different areas (civil, patriotic, spiritual, moral, cultural, etc.) in three main ways:

– Familiarising. Students get acquainted with the history and cultural heritage of the region; define their place in the cultural and historical context;

– Integrating. Being included in the social and cultural life of the city students may foster the cultural level, realize creative potential and develop artistic taste;

– Applying. Students may use the regional infrastructure for implementing their own creative projects.

Infrastructure of the region

Museums	− M.Yu. Lermontov State Museum-Reserve "Tarkhany" (Penza Region, Belinsky District, Lermontovo Village, 1/1 Bugor st.); − – K.A. Savitsky Art Gallery (Penza, 3 Sovetskaya st.); − – G.V. Myasnikov Museum of One Painting (Penza, 11 Kirova st.); − – Association of State Literary and Memorial Museums of the Penza Region (Penza, 2 Kirova st.); − – V.G. Belinsky Museum-Estate (Penza region, Belinsky District, Belinsky, 4 Barysheva st.); − – Local History Museum (Penza, 73 Krasnaya st.); − – V.O. Klyuchevsky Museum (Penza, 66 Klyuchevskogo st.); − - I.N. Ulianov Museum – department of Local History Museum (Penza, 54 Krasnaya st.); − - N.N. Burdenko Museum – department of Local History Museum (Penza, 28 Lermontova st.); − - Folk Art Museum (Penza, 45 Kuibysheva st.).
Monuments	– Victory Monument (Penza, Victory sq.); – Sprout Monument (Penza, Sura River embankment); – First Settler Monument (Penza, Kirova st.); – Afghan Gates Memorial (Penza, Marshala Zhukova sq.);

	– V.I. Lenin Monument (Penza, Lenina sq.); – M.Yu. Lermontov Bust (Penza, Lermontova sq.); – V.G. Belinsky Monument (Penza, Moskovskaya st.); - A.S. Pushkin Bust (Penza, Pushkina st.); – Clock "Cuckoo" (Penza, Fountain Square).
Historical and architectural sites (churches, cathedrals, monasteries, palaces and parks)	– Spassky Cathedral (Penza, 3 Cathedral sq.); – Cathedral of the Assumption of the Blessed Virgin Mary (Penza, 1 Zakharova st.); – St. Innocent of Irkutsk Church (Penza, 4 Perekop st.); – Troitse-Scanov Convent. Cave Convent (Penza Region, Narovchat District, Skanovo village, 1 Monastyrskaya st.); – V.G. Belinsky Park (Penza, 1 Karla Marksa st.); – Olympic Park (Penza, 6 Gagarina st.); – 40th Anniversary Victory Park (Penza, Pobeda Park).
Theatres, concert halls	– A.V. Lunacharsky Penza Drama Theatre (Penza, 89 Moskovskaya st.); – Penza Concert Hall (Penza, 215 Suvorova st.); – V.E. Meyerhold House (Penza, 59 Volodarskogo st.); – Kirillitsa Theatre (Penza, 37 Lermontov st., building 17).
Libraries	– M.Yu. Lermontov Library (Penza, 168a Stroiteley av.); – University Library (Penza, 40 Krasnaya st., buildings 3, 7; 68 Chkalova st., building 9; 37 Lermontova st., building 11).
Cinemas	– Sovremennik (Penza, 10 Pushkina st.); – Suvorovsky (Penza, 144A Suvorova st.); – Vysshaya liga (Penza, 37 Moskovskaya st.); – October (Penza, 39 Kirova st.); – Berlin (Penza, 152B Stroiteley ave.).
Culture and creativity houses	– Culture and Leisure Centre (Penza, 11A Lenina st.); – Youth Centre (Penza, 51 Kirova st.); – Druzhba Folk Art House (Penza, 23 Druzhby st.); – Yunost Culture Centre (Penza, 22B Karpinskogo st.); – Gubernskiy Cultural Development Centre (Penza, 1A Leningradskaya st.); – Regional Folk Art Centre (Penza, 127Ternovsky st.).
Entertainment centres	– «Rollerdrom Sports and Entertainment Centre (Penza, 6 Gagarina st., building 1)
Sports centres	– Rubin Sports Palace (Penza, 9

	Revolyutsionnaya st.); − Diesel Ice Arena (Penza, 163 Okruzhnaya st.); − Olympic Sports Palace (Penza, 39A Antonova st.); − Voeikov Martial Arts Palace (Penza, 22B 40 years of October st.); − Temp Sports and Culture Centre (Penza, 85 Sverdlova st.); − Trud Stadium (Penza, 3A Karla Marksa st.); − Pervomaisky Stadium (Penza, 119 Kalinina st.); − Penza Sports Complex (Penza, 1A Gagarina st.); − Zolotaya Shayba Sport Complex (Penza, 9A Antonova st.).
Forest parks, nature reserves	− I.I. Sprygin Botanical Garden (Penza, 2A Karla Marksa st.).

7.11. Networking with organisations and institutions

7.11.1 Networking forms and methods

1. Implementing an educational programme with the involvement of institutions within the network;

2. Interacting using material and technical resources.

3. Organising network educational events – one-time occasional joint events: campaigns, excursions, practical trainings, internships, etc.

4. Launching network educational projects – joint activity timed to specific learning outcomes.

Networking at the university is implemented through a variety of mechanisms: joint educational programmes, distance learning, independent education quality assessment, public and professional accreditation of educational programmes, research-to-practice conferences, exhibitions, forums, including virtual, etc.

Major organizations and institutions

Educational institutions and social media communities	-Penza State University, Penza, 40 Krasnaya st. *Official website: https://pnzgu.ru/* *VKontakte: https://vk.com/pnzgu* *Instagram: https://www.instagram.com/pnzgu/;* Multidisciplinary college, Penza State University *Official website: https://yurk.pnzgu.ru/* *VKontakte: https://vk.com/college58;* *Instagram: https://www.instagram.com/mk_psu/* -Penza State Agrarian University, Penza, 30 Botanicheskaya St. *Official website: https://pgau.ru/;* *VKontakte: https://vk.com/penz_gau;* *Instagram: https://www.instagram.com/penzenskiigau/* -Penza State University of Architecture and

	Construction, Penza, 28 Germana Titova st. *Official website*: http://www.pguas.ru/ *VKontakte*: https://vk.com/pguaspnz *Instagram*: https://www.instagram.com/pguas_official/; -Penza State Technological University, Penza, 1a / 11 Baydukova pr. / Gagarina st. *Official website*: http://www.penzgtu.ru/ *VKontakte*: https: //vk.com/penzgtu *Instagram*: https://www.instagram.com/penzgtu - Penza Cossack Institute of Technology (branch of) Moscow State University of Technology and Management (First Cossack University), Penza, 6 Volodarskogo st. *Official website: https://mgutupenza.ru/* *VKontakte:https://vk.com/mgutupkit* *Instagram: https://www.instagram.com/mgutupkit/*
Religious organizations which represent traditional confessions	- Penza Eparchy of the Russian Orthodox Church, Penza, 1 Cathedral sq.; - Saint Innocent of Penza Eparchy Spiritual and Educational Centre at the Epiphany Church, Penza, 2 Oktyabskaya st.; - Prayer House of Apostle Andrew the First-Called - Religious organization of the Church of Jesus Christ of Latter-day Saints in Penza, Penza, 53 Bogdanova st,, - Central European Regional Management Center of the New Apostolic Church, Penza, 49 Gromova 6th proezd, - Bible Centre of the Penza Region, Penza, 42 Uritskogo st.
Youth organisations	- Berkut Student Sports Club, Penza State University; - Union of Youth of the Penza Region; - Local Orthodox Religious Organization of the parish of the Church of the Ascension in Penza, Penza Diocese of the Russian Orthodox Church; - Autonomous non-profit organization "Airsoft Federation of the Penza Region" - Penza Regional Branch of the Young Guard of United Russia - Penza Social Youth Charity Service - Penza Regional Youth Organization for Preventing Antisocial Manifestations “Perspective” - Penza Regional Branch of the Russian Student Multidisciplinary Teams Organisation

Radio and television	- Radio Vesti FM; - Radio Express; - Radio Echo of Moscow; - Radio Russia Penza; - Radio Most; - TV channel Penza; - TV channel VGTRK Penza; - TV channel Express; - TV channel 11; - Radio Europa Plus - Radio 101.8 - TV channel Ren; - TV channel Nash Dom;
Newspapers, journals, publishing houses	- University Newspaper, Penza, 40 Krasnaya st., building 1, floor 2, office 213; - Penzenskaya Pravda, Penza, 16 Karla Marxa st.; - Editing and Publishing House, Penza, 65/2 Kirov st.; - ProGorod Newspaper, 34 Plekhanova st., floor 3; - Telesem Journal, Penza, 29 Moskovskaya st., floor 5; - Regional Publishing Centre, Penza, 65 Kirova st.; - Nauka i prosvyashcheniye Publ., Penza, Kirov st., 49, floor 2, office 20; - Nash Dom Publ., Penza, 11E Moskovskaya st.; - ProGorod Publ., 104 Krasnaya st., floor 4, office 414; - Penzenskaya Pravda Publ., Penza, 23 Kuibysheva st.; - Sociosphere Scientific Publishing Centre, Penza, 35 Mira st.; –
History, local history and search organisations	- Penza Region Organisation of Local Historians; - Local History Museum; V.O. Klyuchevsky Museum; - Penza Branch of the Russian Search Movement.
Veteran organisations	- Penza Branch of the Russian Union of Afghanistan Veterans, Penza, 9 Kalinina st.; - Penza Council of Veterans of War, Labour, Armed Forces and Law Enforcement, Penza, 4 Marshala Zhukova sq.; - City Council of Veterans of War, Labour, Armed Forces and Law Enforcement, Penza, 13 Germana Titova st.; - All-Russian Society of Disabled People, Penza, 17A Bogdanova st.; Penza Regional Council of War Veterans,

	Penza, 75 Moskovskaya st.; - Penza House of Veterans, Penza, 9 Sobinova st.; - Regional Committee of Soldiers' Mothers, Penza, 36a Kuraeva st.; - Council for Veteran Affairs under the Governor of the Penza Region, Penza, 65 Kirova st.; - Regional Organisation of the Russian Union of Afghanistan Veterans, Penza, 18a Bogdanova st.
Public educational organisations	- Union of Youth of the Penza Region, e-mail: ynews@mail.ru, https://vk.com/smpo58; - Centre for Youth Cooperation, Penza, 17 Volodarskogo st., office 5; - Multifunctional Youth Centre, Penza, 51 Kirova st.; - Penza Regional Branch of the Russian Student Multidisciplinary Teams Organisation, Penza, 51 Kirova st.; - Gansu Provincial Youth Association
Patriotic organisations	- Zaseka youth historical club, Penza, 17 Kolkhozny 3 pr.; - Guard Patriotic Club, Penza, 14 Bekeshskaya
Sports teams and clubs	- Sports Training Centre of the Penza Region, Penza, 39-a Antonova st. http://shvsm-penza.ru/ - School of the Olympic Reserve of the Penza Region, Penza, 93 Pugacheva st.93 http://uor-penza.ru - N.A. Lavrova Specialised Children and Youth Sports Gymnastics School of the Olympic Reserve, www.burtasy.ru - Specialised Children and Youth Water Sports School of the Olympic Reserve dvs-sura.ru - Specialised Children and Youth Hockey School of the Olympic Reserve - Horizon Specialised Children and Youth Swimming School of the Olympic Reserve http://58sport.ru
Creativity organisations and culture associations	- Ministry of Culture and Tourism of the Penza Region, http://minkult.pnzreg.ru/; **Museums** - M.Yu. Lermontov State Museum-Reserve "Tarkhany", Penza Region, Belinsky District, Lermontovo Village, 1/1 Bugor st., http://tarhany.ru; - K.A. Savitsky Art Gallery (Penza, 3 Sovetskaya st., penza-art@mail.ru; Museum of Glass and Crystal, Penza Region, Nikolsk, 21 Komsomolskaya st., museum-nikolsk@mail.ru;

	- G.V. Myasnikov Museum of One Painting, Penza, 11 Kirova st., tel. 56-14-27; - Association of State Literary and Memorial Museums of the Penza Region, Penza, 2 Kirova st., www. litmuzpenza.ru; - Local History Museum, Penza, 73 Krasnaya st., museum@tl.ru; V.O. Klyuchevsky Museum, Penza, 66 Klyuchevskogo st., tel. 54-38-01; - Folk Art Museum, Penza, 45 Kuibysheva st.; **Theatres and performance venues** - A.V. Lunacharsky Penza Drama Theatre, Penza, 89 Moskovskaya st., dramapnz@rambler.ru; - Penza Concert Hall, Penza, 215 Suvorova st., http://penzakoncert.ru; **State libraries** - M.Yu. Lermontov Library, Penza, 168a Stroiteley av., tel. 63-44-32, 63-44-35; Penza, 10 Belinskogo st., tel. 63-44-21; http://liblermont.ru.
Volunteering organisations	- Regional Branch of We Are Together Campaign; - Penza Branch of the Victory Volunteers Organisation; - Association of Green Universities; - Volunteer Corps of Penza State University; - Victory Volunteers All-Russian Movement.
Non-profit organisations. Information and research organisations	- Research and Methodology Organisation “Privolzhsky House of Knowledge”, http://pdzpenza.ru; -Quarter Louis Disabled People Organisation, http://kvartal-lui.ru; - PenzaHobby Creative Association General Director Timakova Lyudmila, organizations working with disabled people, http://penzahobby.ru; - Social and Pedagogical Support Children and Youth Organisation “Flammeous” Director Kichatov Mikhail; - Penza Branch of the Trade Union of Education and Science Workers of the Russian Federation, http://profobr58.ru/; - Federation of the trade unions in the Penza Region, http://fppo.ru, https://vk.com/club156540412; - Penza Organization of Practicing Psychologists “Circle of Trust” Director Manchenkova Natalya, https://vk.com/krug_doveriya; - Penza Branch of the All-Russian Youth Organisation “Russian Student Teams”, http://rso58.ru; https://vk.com/rso_penza; - Trade union of Penza State University

	students, (8412) 36-84-60, https://profstud.pnzgu.ru/, profcom-psu@mail.ru; - Penza Branch of the Russian Military Historical Society, https://rvio.histrf.ru, https://vk.com/rviopenza;

7.12 Staffing

Learning, teaching and mentoring are the most important aspects in the work of the university, institutes and faculties, teaching and administrative staff. The huge workload is concentrated in the academic and social affairs departments, deputy directors / deans for academic affairs and mentors. On a voluntary basis, socially significant work is performed by active students.

The basic professional educational programme of higher education was compiled in accordance with the requirements of the Federal State Educational Standard of Higher Education in the study field 09.03.01 Informatics and Computer Engineering (Bachelor's degree programme) approved by the Order of the Ministry of Science and Higher Education of the Russian Federation dated September 19, 2017 no. 929, Professional standard 06.001 "Programmer", approved by the Order of the Ministry of Labor and Social Protection of the Russian Federation dated July 20, 2022 no. 424n and agreed with the following representatives of employers:

LLC "I-Teco Implementation centre"
General Director — Igor Rudyi

CodeInside LLC
Chief Executive Officer — Maxim Semenkin

Open Solutions, Ltd
Chief Operational Officer — Igor Bochkarev

Person responsible for designing the basic professional educational programme of higher education:

Head of Department «Computer Engineering» — M.A. Mitrokhin
(name of department) (signature) (full name)

The programme was approved by the Methodological Committee of the Faculty of Computer Engineering
Record no. 10 dated « 29 » 06 2023

Head of the Methodological Committee of the Faculty of Computer Engineering
T.V. Glotova
(signature) (full name)

The programme was approved by the Academic Council of the Faculty of Computer Engineering
Record no. 10 dated « 29 » 06 20 23

Dean of the Faculty of Computer Engineering L.R. Fionova
(signature) (full name)

I certify that this is an accurate translation of the original document.

Head of the International Projects Department T.A. Razuvaeva

LIST OF AMENDMENTS

to the professional educational programme of higher education in the study field Informatics and Computer Engineering

for 2024/2025

Components of the professional educational programme of higher education	Introduced amendments	Details of the record of the Academic Council of the faculty/ institute	Signature of the chairperson of the Academic Council of the faculty/ institute
Educational programmes of discipline	Changes have been made: 1. In the educational programme of the discipline «Basics of Project Management».	Protocol № 2 from 16.09.2024	
Assessment funds by discipline	Changes have been made to the fund of evaluation of the discipline «Basics of Project Management».		

LIST OF AMENDMENTS

to the professional educational programme of higher education in the study field Informatics and Computer Engineering

for 2025/2026

Components of the professional educational programme of higher education	Introduced amendments	Details of the record of the Academic Council of the faculty/ institute	Signature of the chairperson of the Academic Council of the faculty/ institute
Educational programmes of discipline	No changes.	Protocol № 1 from 22.09.2025	
Assessment funds by discipline	No changes.		

LIST OF AMENDMENTS

to the professional educational programme of higher education in the study field Informatics and Computer Engineering for 2026/2027

Components of the professional educational programme of higher education	Introduced amendments	Details of the record of the Academic Council of the faculty/ institute	Signature of the chairperson of the Academic Council of the faculty/ institute
Working programs of disciplines. Funds of assessment tools for disciplines.	Updated – competencies from the professional standard have been added to the following disciplines: 1. Information Technologies in Professional Activities 2. Information Technologies in Professional Activities 3. Application Programming Interfaces 4. Web Programming 5. Modern Information Technologies 6. Cross-Platform Application Development 7. Programming Technologies 8. Design and Development of Mobile Applications	Protocol No. 10 dated 23.06.2026	
Work programs of practices and assessment tools. The ГИА program and assessment tools.	Without changes		