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**Federal State Autonomous Educational Institution  
of Higher Education "Peoples' Friendship University of Russia named after Patrice  
Lumumba"**

**Academy of Engineering**

(name of the main educational unit (PMU) - the developer of the EP HE)

**INTERNSHIP PROGRAM**

**Pre-graduation practice**

(name of the internship)

**Internship**

(type of practice: educational, industrial)

**Recommended for the field of study/specialty:**

**27.04.04 Control in Technical Systems**

(code and name of the direction of training/specialty)

**Practical training of students is carried out as part of the implementation of the main professional educational program of higher education (EP HE):**

***Data Science and Space Engineering***

(name (profile/specialization) of the EP HE)

## 1. PURPOSE OF THE INTERNSHIP

The purpose of the pre-diploma practice is to practice and deepen, systematize and consolidate theoretical knowledge in the disciplines studied, collect, process and analyze the material necessary for the development of the final qualification work, as well as the formation and development of practical skills and competencies of the master, the acquisition of experience in independent professional activity.

**The main objectives of pre-diploma practice are:**

- clarification of the composition and volume of the final qualification work;
- collection of initial data on the topic of the final qualification work and the necessary technical literature.

## 2. REQUIREMENTS FOR THE RESULTS OF TRAINING BASED ON THE RESULTS OF THE INTERNSHIP

Pre-diploma practice is aimed at the formation of the following competencies (parts of competencies) in students:

*Table 2.1. List of competencies formed in students during the internship (learning outcomes based on the results of the internship)*

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement (within the framework of this discipline)</b>
GC-1	Ability to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy	GC-1.1. Analyzes the task, highlighting its basic components;
		GC-1.2. Determines and ranks the information required to solve the problem;
		GC-1.3. Searches for information to solve the problem by various types of requests;
		GC-1.4. Offers options for solving the problem, analyzes the possible consequences of their use;
		GC-1.5. Analyzes the ways of solving problems of worldview, moral and personal character on the basis of the use of basic philosophical ideas and categories in their historical development and socio-cultural context.
GC-2	Ability to manage a project at all stages of its life cycle	GC-2.1. Formulates a problem, the solution of which is directly related to the achievement of the project goal;
		GC-2.2. Determines the links between the tasks set and the expected results of their solution;
		GC-2.3. Within the framework of the tasks set, determines the available resources and limitations, the current legal norms;
		GC-2.4. Analyzes the schedule for the implementation of the project as a whole and chooses the best way to solve the tasks, based on the current legal norms and available resources and restrictions;
		GC-2.5. Controls the progress of the project, adjusts the schedule in accordance with the results of control.
GC-3	Ability to organize and lead the work of a team, developing a team strategy to achieve a set goal.	GC-3.1. Determines his role in the team, based on the strategy of cooperation to achieve
		GC-3.2. Formulates and takes into account in its activities the features of the behavior of groups of people identified depending on the set goal;

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement</b> (within the framework of this discipline)
		GC-3.3. Analyzes the possible consequences of personal actions and plans their actions to achieve a given result; GC-3.4. Exchanges information, knowledge and experience with team members; GC-3.5. Argues his point of view regarding the use of the ideas of other team members to achieve the goal; GC-3.6. Participates in teamwork on the implementation of assignments
GC-4	Ability to apply modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	GC-4.1. Chooses the style of business communication, depending on the language of communication, the purpose and conditions of partnership; GC-4.2. Adapts speech, communication style and sign language to interaction situations; GC-4.3. Searches for the necessary information to solve standard communicative tasks in Russian and foreign languages; GC-4.4. Conducts business correspondence in Russian and foreign languages, taking into account the peculiarities of the style of official and unofficial letters and socio-cultural differences in the format of correspondence; GC-4.5. Uses dialogue for cooperation in academic communication, taking into account the personality of the interlocutors, their communicative and speech strategy and tactics, the degree of formality of the situation; GC-4.6. Forms and argues his/her own assessment of the main ideas of the participants in the dialogue (discussion) in accordance with the needs of joint activity.
GC-5	Ability to analyse and take into account the diversity of cultures in the process of intercultural interaction	GC-5.1. Interprets the history of Russia in the context of world historical development; GC-5.2. Finds and uses information about the cultural characteristics and traditions of various social groups in social and professional communication; GC-5.3. Takes into account the historical heritage and socio-cultural traditions of various social groups, ethnicities and confessions, including world religions, philosophical and ethical teachings, in social and professional communication on a given topic; GC-5.4. Collects information on a given topic, taking into account the ethnic groups and confessions that are most widely represented in the points of the study; GC-5.5. Substantiates the features of project and team activities with representatives of other ethnic groups and (or) faiths; GC-5.6. Adheres to the principles of non-discriminatory interaction in personal and mass communication in order to fulfill professional tasks and strengthen social integration
GC-6	Ability to identify and implement priorities for one's own activities and ways to	GC-6.1. Controls the amount of time spent on specific types of activities; GC-6.2. Develops tools and methods for time management when performing specific tasks, projects, goals;

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement</b> (within the framework of this discipline)
	improve them based on self-assessment	GC-6.3. Analyzes his/her resources and their limits (personal, situational, temporal, etc.) for the successful completion of the task; GC-6.4. Distributes tasks into long-, medium- and short-term with justification of relevance and analysis of resources for their implementation.
GC-7	Ability to search for the necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as with the help of algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	GC-7.1. Searches for the necessary sources of information and data, perceives, analyzes, remembers and transmits information using digital means, as well as with the help of algorithms when working with the data obtained from the various data sources in order to effectively use the information obtained to solve problems; GC-7.2. Evaluates information, its reliability, builds logical conclusions based on incoming information and data.
GPC-1	Ability to analyze and identify the natural-scientific essence of control problems in technical systems on the basis of provisions, laws and methods in the field of natural sciences and mathematics	GPC-1.1. Knows the basic laws, provisions and methods in the field of natural sciences and mathematics GPC-1.2. Is able to identify the natural-scientific essence of control problems in technical systems, guided by the laws and methods of natural sciences and mathematics GPC-1.3. Owns tools for analyzing management problems in technical systems
GPC-2	Ability to formulate management tasks in technical systems and substantiate methods for solving them.	GPC-2.1. Knows the basic methods of solving control problems in technical systems GPC-2.2. Is able to substantiate methods for solving control problems in technical systems GPC-2.3. Knows the methods of setting control tasks in technical systems
GPC-3	Ability to independently acquire new knowledge, skills and abilities to solve management problems in technical systems.	GPC-3.1. Knows the basic approaches to solving control problems in technical systems GPC-3.2. Is able to apply the main approaches based on the latest achievements of science and technology to solving control problems in technical systems GPC-3.3. Possesses methods of solving control problems in technical systems based on the latest achievements of science and technology
GPC-4	Ability to assess the effectiveness of management systems developed on the basis of modern mathematical methods.	GPC-4.1. Knows the basic mathematical methods used to assess the effectiveness of the results of management systems GPC-4.2. Is able to apply mathematical methods to assess the effectiveness of management system results GPC-4.3. Possesses mathematical methods for assessing the effectiveness of management system results

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement</b> (within the framework of this discipline)
GPC-5	Ability to conduct patent research, determine the forms and methods of legal protection and protection of rights to the results of intellectual activity, dispose of rights to them to solve problems in the field of development of science, engineering and technology.	GPK-5.1. Knows the methods and approaches to patent research, forms and methods of legal protection and protection of rights to the results of intellectual activity
		GPC-5.2. Knows how to dispose of rights to the results of intellectual activity to solve problems in the field of development of science, engineering and technology
		GPK-5.3. Owns methods and approaches to patent research, knows the methods of legal protection and protection of rights to the results of intellectual activity
GPC-6	Ability to collect and analyze scientific and technical information, summarize domestic and foreign experience in the field of automation and control equipment.	GPK-6.1. Knows the basic methods of collecting and conducting the analysis of scientific and technical information
		GPC-6.2. Is able to analyze and summarize domestic and foreign experience in the field of automation and control facilities
		GPC-6.3. Possesses methods of collecting and analyzing scientific and technical information, and can also summarize domestic and foreign experience in the professional field
GPC-7	Ability to make an informed choice, develop and implement in practice circuitry, system engineering and hardware and software solutions for automation and control systems.	GPC-7.1. Is able to develop and implement in practice circuitry and system engineering solutions for automation and control systems
		GPC-7.2. Able to develop hardware and software solutions for automation and control systems
		GPC-7.3. Owns approaches for the implementation of a reasonable choice and implementation in practice of circuitry, system engineering, hardware and software solutions for automation and control systems
GPC-8	Ability to choose methods and develop control systems for complex technical objects and technological processes.	GPC-8.1. Knows the basic methods used for the development of control systems for complex technical objects and technological processes
		GPC-8.2. Is able to develop control systems for complex technical objects and technological processes
		GPC-8.3. Has skills in choosing methods and developing control systems for complex technical objects and technological processes
GPC-9	Ability to develop methods and perform experiments at existing facilities with processing of results based on modern information technologies and technical means.	GPC-9.1. Possesses modern information technologies and technical means for conducting experiments at operating facilities
		GPC-9.2. Has the skills to develop methods and conduct experiments at operating facilities
		GPC-9.3. Has the skills to develop a methodology and perform experiments at operating facilities with the processing of results through information technology
GPC-10	Ability to manage the development of methodological and regulatory documents, technical documentation in the field of automation of technological processes and production,	GPC-10.1. Is familiar with the main approaches to the development of methodological and regulatory documents, technical documentation in the field of automation of technological processes and production
		GPC-10.2. Owns approaches to manage the development of technical documentation and regulatory documents in the field of automation of technological processes and

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement</b> (within the framework of this discipline)
	including the life cycle of products and their quality.	production, including the life cycle of products and their quality
PC-1	Ability to formulate goals, objectives of scientific research in the field of artificial intelligence, choose methods and means of solving problems.	PC-1.1. Knows the methods and means of solving the problems of scientific research in the field of artificial intelligence systems and robotic systems
		PC-1.2. Is able to formulate the goal and objectives of scientific research in the professional field
		PC-1.3. Possesses techniques for formulating the goals and objectives of scientific research, knows how to choose methods and means for solving problems of professional activity
PC-2	Ability to apply modern theoretical and experimental methods for the development of mathematical models of studied objects and processes related to professional activities in the field of training.	PC-2.1. Knows modern theoretical and experimental methods used to develop mathematical models of studied objects and processes of professional activity
		PC-2.2. Is able to determine the effectiveness of the methods used to develop mathematical models of the objects and processes under study
		PC-2.3. Owns modern theoretical and experimental methods for the development of mathematical models of objects and processes of professional activity in the field of training
PC-3	Ability to analyze the results of theoretical and experimental research, give recommendations for improving devices and systems, prepare scientific publications and applications for inventions	PC-3.1. Is able to analyze the results of theoretical and experimental research
		PC-3.2. Is able to formulate recommendations for improving devices and systems, prepare the results of scientific research for publication and form documents for filing an application for an invention
		PC-3.3. Participates in the analysis of research results, has the skills of formulating recommendations for improving devices and systems, as well as writing articles and submitting documents for registration of inventions
PP-4	Ability to solve applied problems in the field of artificial intelligence and robotic systems	PC-4.1. Familiar with the main methods and approaches used to solve problems in the field of artificial intelligence and robotic systems
		PC-4.2. Owns methods for solving professional problems in the field of artificial intelligence and robotic systems
		PC-4.3. Is able to apply mathematical methods and modern information technologies in scientific research
PP-5	Ability to collect and analyze initial information data for the development of scientific and technical projects of civilian topics, including for organizations of the rocket and space industry	PC-5.1. Knows the basic principles, methods and means of developing mathematical and information support for the developed scientific and technical projects of civil topics, knows the methodology for creating models describing the functioning of components, products, complexes and (or) systems of civil topics; knows design automation tools
		PC-5.2. Is able to carry out timely collection and analysis of information on advanced technological solutions to identify the best parameters with their subsequent application in the development of thematic products
		PC-5.3. Is able to use general and special-purpose software for intelligent processing of the data obtained for digital modeling and ways of their application

<b>Cipher</b>	<b>Competence</b>	<b>Indicators of Competency Achievement (within the framework of this discipline)</b>
PP-6	Ability to develop working design and technical documentation, draw up completed design and engineering work with verification of compliance of developed projects and technical documentation with standards, specifications and other regulatory documents, including for organizations of the rocket and space industry.	PC-6.1. Knows the scientific basis for the development of standards and regulatory documentation; the procedure for the development, approval and implementation of standards, technical specifications and other regulatory documentation
		PC-6.2. Is able to develop new and revise existing standards and regulatory documents; carry out regulatory control of technical documentation
		PC-6.3. Possesses the skills of developing standards and regulatory documentation; processing of experimental data and assessment of the accuracy of measurements; registration of measurement results and regulatory and technical documentation

### **3. PLACE OF PRACTICE IN THE STRUCTURE OF THE EDUCATIONAL PROGRAM OF HIGHER EDUCATION**

Pre-diploma practice refers to the part formed by the participants of educational.

Within the framework of the EP HE, students also master disciplines and/or other practices that contribute to the achievement of the planned learning outcomes based on the results of the pre-diploma practice.

*Table 3.1. List of components of the EP HE that contribute to the achievement of the planned learning outcomes based on the results of the internship*

<b>Cipher</b>	<b>Competency Name</b>	<b>Previous Disciplines/Modules, Practices*</b>	<b>Subsequent disciplines/modules, practices*</b>
GC-1	Ability to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy	History and Methodology of Science Artificial Neural Networks (Deep Learning) Artificial neural networks (deep learning) Artificial Neural Networks (Reinforcement Learning) Artificial neural networks (reinforcement learning) Research work	State Final Certification
GC-2	Ability to manage a project at all stages of its life cycle	History and Methodology of Science Research work	State Final Certification
GC-3	Ability to organize and lead the work of a team, developing a team strategy to achieve a set goal.	History and Methodology of Science	State Final Certification
GC-4	Ability to apply modern communication technologies in the state language of the Russian	Professional Russian (as a Foreign Language) in Professional Activity	State Final Certification

<b>Cipher</b>	<b>Competency Name</b>	<b>Previous Disciplines/Modules, Practices*</b>	<b>Subsequent disciplines/modules, practices*</b>
	Federation and foreign language(s) for academic and professional interaction.		
GC-5	Ability to analyse and take into account the diversity of cultures in the process of intercultural interaction	History and Methodology of Science	State Final Certification
GC-6	Ability to identify and implement priorities for one's own activities and ways to improve them based on self-assessment	History and Methodology of Science	State Final Certification
GC-7	Ability to search for the necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as with the help of algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information	History and Methodology of Science Information Technology in Mathematical Modelling Artificial Neural Networks (Reinforcement Learning) Artificial neural networks (reinforcement learning) Research work	State Final Certification
GPC-1	Ability to analyze and identify the natural-scientific essence of control problems in technical systems on the basis of provisions, laws and methods in the field of natural sciences and mathematics	Information Technology in Mathematical Modelling Numerical Methods for Solving Mathematical Modeling Problems Programming Technology Virtual Reality and Computer Vision Advanced Methods of Space Flight Mechanics Advanced Methods of Earth Remote Sensing / Современные методы дистанционного зондирования Земли Geoinformation Systems and Applications	State Final Certification
GPC-2	Ability to formulate management tasks in technical systems and	Name Information Technology in Mathematical Modelling	State Final Certification



<b>Cipher</b>	<b>Competency Name</b>	<b>Previous Disciplines/Modules, Practices*</b>	<b>Subsequent disciplines/modules, practices*</b>
	substantiate methods for solving them.	Numerical Methods for Solving Mathematical Modeling Problems Programming Technology Virtual Reality and Computer Vision Name Dynamics and Control of Space Systems	
GPC-3	Ability to independently acquire new knowledge, skills and abilities to solve management problems in technical systems.	Programming Technology Virtual Reality and Computer Vision Advanced Methods of Space Flight Mechanics Dynamics and Control of Space Systems Research work	State Final Certification
GPC-4	Ability to assess the effectiveness of management systems developed on the basis of modern mathematical methods.	History and Methodology of Science Advanced Methods of Earth Remote Sensing / Современные методы дистанционного зондирования Земли Dynamics and Control of Space Systems	State Final Certification
GPC-5	Ability to conduct patent research, determine the forms and methods of legal protection and protection of rights to the results of intellectual activity, dispose of rights to them to solve problems in the field of development of science, engineering and technology.	Machine Learning and Big Data Mining Dynamics and Control of Space Systems Research work	State Final Certification
GPC-6	Ability to collect and analyze scientific and technical information, summarize domestic and foreign experience in the field of automation and control equipment.	Machine Learning and Big Data Mining Advanced Methods of Earth Remote Sensing / Современные методы дистанционного зондирования Земли Research work	State Final Certification
GPC-7	Ability to make an informed choice, develop and implement in practice circuitry, system engineering and hardware and software solutions for	Advanced Methods of Space Flight Mechanics Dynamics and Control of Space Systems Research work	State Final Certification

<b>Cipher</b>	<b>Competency Name</b>	<b>Previous Disciplines/Modules, Practices*</b>	<b>Subsequent disciplines/modules, practices*</b>
	automation and control systems.		
GPC-8	Ability to choose methods and develop control systems for complex technical objects and technological processes.	History and Methodology of Science Numerical Methods for Solving Mathematical Modeling Problems	State Final Certification
GPC-9	Ability to develop methods and perform experiments at existing facilities with processing of results based on modern information technologies and technical means.	Virtual Reality and Computer Vision Geoinformation Systems and Applications Dynamics and Control of Space Systems	State Final Certification
GPC-10	Ability to manage the development of methodological and regulatory documents, technical documentation in the field of automation of technological processes and production, including the life cycle of products and their quality.	History and Methodology of Science Advanced Methods of Space Flight Mechanics Research work	State Final Certification
PC-1	Ability to formulate goals, objectives of scientific research in the field of application of geographic information systems in the development of territories, choose methods and means for solving professional problems	Advanced Methods of Space Flight Mechanics Artificial Neural Networks (Deep Learning) Artificial neural networks (deep learning) Artificial Neural Networks (Reinforcement Learning) Research work	State Final Certification
PC-2	Ability to apply modern theoretical and experimental methods for the development of mathematical models of studied objects and processes related to professional activities in the field of training.	History and Methodology of Science Information Technology in Mathematical Modelling Virtual Reality and Computer Vision Advanced Methods of Space Flight Mechanics Geoinformation Systems and Applications Dynamics and Control of Space Systems Artificial Neural Networks (Deep Learning) Artificial neural networks (deep learning) Research work	State Final Certification

<b>Cipher</b>	<b>Competency Name</b>	<b>Previous Disciplines/Modules, Practices*</b>	<b>Subsequent disciplines/modules, practices*</b>
PC-3	Ability to analyze the results of theoretical and experimental research, give recommendations for improving devices and systems, prepare scientific publications and applications for inventions	Virtual Reality and Computer Vision Advanced Methods of Earth Remote Sensing / Современные методы дистанционного зондирования Земли Research work	State Final Certification
PP-4	Ability to apply modern theoretical and experimental methods for the development of mathematical models of the objects and processes under study related to professional activities in the field of training	History and Methodology of Science Advanced Methods of Earth Remote Sensing / Современные методы дистанционного зондирования Земли Dynamics and Control of Space Systems Artificial Neural Networks (Reinforcement Learning) Research work	State Final Certification

\* - to be completed in accordance with the competency matrix and the SUP of the EP HE

#### 4. SCOPE OF PRACTICE

The total labor intensity of pre-diploma practice is 21 credits (756 academic hours).

#### 5. CONTENT OF THE INTERNSHIP

*Table 5.1. Internship content\**

<b>Name of the practice section</b>	<b>Content of the section (topics, types of practical activities)</b>	<b>Labor intensity, ac.p.</b>
Section 1. Organizational and preparatory	Receiving an individual assignment for practice from the supervisor	2
	Safety briefing in the workplace (in the laboratory and/or in production)	4
Section 2. Principal	Collection of initial data on the topic of the final qualification work and the necessary technical literature	600
	Current control of the internship by the supervisor	30
	Keeping an internship diary	35
Preparation of an internship report		35
Preparation for defense and defense of the internship report		50
<b>ALTOGETHER:</b>		<b>756</b>

\* - the content of the internship by sections and types of practical training is FULLY reflected in the student's internship report.

#### 6. MATERIAL AND TECHNICAL SUPPORT FOR THE INTERNSHIP

To conduct research practice, laboratories equipped with modern computer equipment with Matlab 2008, Borland Developer Studio, G2, Wonderware Intouch software and Internet access are required. The safety requirements are the same as when working with personal computers.

When passing pre-diploma practice at RUDN University, the material and technical base of the graduating department is used, which trains masters and bachelors in the direction of "Management in Technical Systems".

## 7. METHOD OF PRACTICE

Pre-diploma practice can be carried out both in the structural divisions of RUDN University or in organizations in Moscow (stationary), and at bases located outside Moscow (offsite).

Internship on the basis of an external organization (outside RUDN University) is carried out on the basis of an appropriate agreement, which specifies the terms, place and conditions of the internship in the base organization.

The terms of the internship correspond to the period specified in the calendar curriculum of the EP HE. The timing of the internship can be adjusted in agreement with the Department of Educational Policy and the Department of Organizing Internships and Promoting the Employment of Graduates at RUDN University.

## 8. EDUCATIONAL, METHODOLOGICAL AND INFORMATION SUPPORT OF PRACTICE

### *Reference citations:*

Classical and modern methods of the theory of automatic control. Textbook in 5 volumes; 2nd ed., revised and supplemented / Ed. by K.A. Pupkov, N.D. Egupov. – Moscow: BMSTU Publishing House, 2004.

– Pupkov K.A. Modeling and testing of automatic control systems. Uch. allowance. Moscow, RUDN Publ., 2014. – 98 p.

– Egupov N.D., Kolesnikov L.V., Pupkov K.A., Trofimov A.I. / ed. Matveev V.A. Algoritmicheskaya teoriya sistem upravleniya, osnovannaya na spektral'nykh metodakh [Algorithmic theory of control systems based on spectral methods]. Monograph in 2 vols. – Moscow: BMSTU Publishing House, 2014. – 464 p. Volume 1 and – 464 p. Volume 2.

Russian journals: Automation and Telemekhanics; Sensors and Systems; Proceedings of Higher Educational Institutions; Instrument Engineering; News of Higher Educational Institutions. Applied Nonlinear Dynamics; Proceedings of Higher Educational Institutions. Problems of Energy; Proceedings of the Russian Academy of Sciences. Theory and Control Systems; Information-Measuring and Control Systems; Information Technologies; Mathematical Modeling; Mechatronics. Automation. Control; Nonlinear World; Review of Applied and Industrial Mathematics; Devices and systems: "Control, Control, Diagnostics"; Applied Mathematics and Mechanics; Forecasting problems; Problems of Theory and Practice of Management; Management problems; Management Systems and Information Technology; Digital signal processing; Open systems; Neurocomputers: development, application.

Foreign magazines: CAD/CAM/CAE Observer; Artificial Intelligence; IEEE Transaction on Automation Control; Control; IEEE Mechanical.

### *Further reading*

Proceedings of 16th Congress, 2005: Prague, Czech Republic

Proceedings of 17th Congress, 2008: Seoul, Republic of Korea

Proceedings of 18th Congress, 2011: Milan, Italy

<http://www.ifac-control.org/publications>

*Resources of the information and telecommunication network "Internet":*

1) Electronic Library System (EBS) of RUDN University and third-party EBS, to which university students have access on the basis of concluded contracts:

- EBS RUDN <http://lib.rudn.ru/MegaPro/Web>
- EBS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- EBS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EBS "Lan" <http://e.lanbook.com/>
- EBS "Troitsky Bridge"

2) Databases and search engines:

- electronic collection of legal and regulatory and technical documentation <http://docs.cntd.ru/>
- Yandex <https://www.yandex.ru/> search engine <https://www.yandex.ru/>
- Google Search Engine <https://www.google.ru/>
- SCOPUS Abstract [Database http://www.elsevierscience.ru/products/scopus/](http://www.elsevierscience.ru/products/scopus/)

*Educational and methodological materials for internship, filling out a diary and drawing up an internship report\*:*

1) Rules of safe working conditions and fire safety during pre-diploma practice (initial briefing).

2) General structure and principle of operation of technological production equipment used by students during internship; technological maps and regulations, etc. (if necessary).

3) Methodical instructions for students to fill out a diary and draw up an internship report.

\* - all educational and methodological materials for internship are posted in accordance with the current procedure on the internship page in TUIS

## **9. ASSESSMENT MATERIALS AND A POINT-RATING SYSTEM FOR ASSESSING THE LEVEL OF COMPETENCE FORMATION BASED ON THE RESULTS OF THE INTERNSHIP**

Assessment materials and a point-rating system\* for assessing the level of competence formation (part of competencies) based on the results of pre-diploma practice are presented in the Appendix to this Internship Program (module).

\* - OM and BRS are formed on the basis of the requirements of the relevant local regulatory act of RUDN University (provision/procedure).

### **DEVELOPERS:**

Associate Professor of the Department  
of Mechanics and Control Processes

Position

Saltykova O.A.

Signature

Surname I.O.

### **HEAD OF THE DEPARTMENT:**

Head of the Department of Mechanics  
and Control Processes

Name of BUP

Razumny Yu.N.

Signature

Surname I.O.

### **HEAD OF THE DEPARTMENT OF HIGHER EDUCATION:**

Professor of the Department of  
Mechanics and Control Processes

Position

Razumny Yu.N.

Signature

Surname I.O.