

*Federal State Autonomous Educational Institution of
Higher Education
Peoples' Friendship University of Russia
Academy of Engineering*

WORKING PROGRAM OF PRACTICE

Practice type: Internship

Practice type and its name: Pedagogical practice

Field of study: 09.06.01 Informatics and Computer Technologies

Major: Mathematical Modeling, Numerical Methods and Software Systems (Technical Science)

Moscow,
2021

The working program of research activities was developed in accordance with the curriculum in the field of study: 09.06.01 Informatics and Computer Technologies, major: Mathematical Modeling, Numerical Methods and Software Systems (Technical Science), admission of 20__, approved at the meeting of the Academic Council of the Academy of Engineering

The working program for "Pedagogical practice" was considered at the meeting of the Department of Mechanics and Mechatronics

Разработчики:

associate professor of the Department
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1. Internship Goals and Tasks

Pedagogical practice is an industrial practice and is aimed at the formation and development of competencies in graduate students in accordance with the level of education and professional standard; development of teaching skills in the field of management in technical systems and related areas of technical knowledge in higher education; acquisition of skills of work in a scientific and pedagogical team.

The main objectives of the Pedagogical Practice are:

- to study the methods and techniques of teaching and upbringing in higher education;
- learn how to conduct classes in technical disciplines;
- master the primary skills of modeling lessons, drawing up programs and projects, planning individual lessons and forecasting a special course, choosing an effective strategy for the organization.

2. The place of internship in the structure of EP of HE

Pedagogical practice belongs to the variable part of Block 2 of the curriculum. Its passage is based on the material of previous disciplines and / or practices, and it is also basic for the study of subsequent disciplines and / or practices of the curriculum, the list of which is presented in Table 1.

Table 1 - List of previous and subsequent disciplines / practices

№ п/п	Preceding disciplines / practices	Subsequent disciplines
1	Methods of teaching informatics and computer technology in higher education	State final exam
2	Research Seminar	

3. Ways of conducting practice

The methods of conducting the Pedagogical practice are as follows:

- stationary.

4. Объем практики и виды учебной работы

Таблица 2 – Объем практики и виды учебной работы

Type of educational work	Total, Academic hours	Term			
		3	4	5	6
Contact work of a student with a teacher, including control	92	26	22	22	22
Other forms of educational work, including keeping a diary of practice and preparing a report for students	448	190	86	86	86
Type of certification test		Pass with grade	Pass with grade	Pass with grade	Pass with grade

Total workload	Academic hours	540	216	108	108	108
	credits	15	6	3	3	3
Duration of internship	weeks	Distribut ed	Distribut ed	Distribut ed	Distribut ed	Distribut ed

5. Place of practice

The place of internship is provided to the student by the head of the internship on the basis of the relevant agreements concluded with the basic organizations.

The base for students to undergo Pedagogical practice is the Department of Mechanics and Mechatronics of the Institute of Space Technologies of the Engineering Academy of the RUDN University.

A graduate student can come up with an initiative about the place of internship. The direction of the professional activity of the organization offered to students for internship must correspond to the profile of the educational program and the types of professional activities for which the graduate of the program is preparing. The place of the internship must be agreed with the head of the department with the subsequent (with a positive decision) the conclusion of an appropriate contract with the organization proposed by the student.

Postgraduate students with disabilities and / or those belonging to the category of "disabled" undergo practice, in an accessible form for them in the laboratories of the university, as well as in specialized organizations with which the relevant contracts have been concluded and which have the opportunity (equipment, special means and infrastructure) to work with these categories of citizens.

6. The list of the planned results of the internship, correlated with the planned results of mastering the educational program

Pedagogical practice is aimed at developing the following competencies in students:

- readiness to organize the work of the research team in the field of professional activity (OPK-8);

- readiness to teach training courses, disciplines (modules), conduct certain types of training sessions in Russian and foreign languages in higher education programs (PC-5);

The result of the internship is knowledge, skills, competencies and abilities of professional activity, which characterize the stages of the formation of competencies and ensure the achievement of the planned results of mastering the educational program, presented in Table 3.

Table 3 - Learning outcomes in the discipline, correlated with the planned results of mastering EP of HE

Competence	Knowledge	Skill	Abilities
1	2	3	4
<i>Willingness to organize the work of the research team in the field of professional activity (OPK-8)</i>	- regulatory framework for teaching in the higher education system	- to select and use the best teaching method	- ability to design the educational process at the level of higher education

<i>Readiness to teach training courses, disciplines (modules), conduct certain types of training in Russian and foreign languages for higher education programs (PC-5)</i>	- knowledge of foreign languages, modern educational technologies	- to form, select, structure and present educational material, carry out preparation for training sessions	- possession of skills in the development of methodological support for the discipline, skills in managing the cognitive activity of students
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7. Structure and content of practice

3 TERM					
№ п/п	Stages of practice	Types of work carried out by students	Educational work by forms, academic hours		Total, academic hours.
			<i>Contact work</i>	<i>Other forms of educational work</i>	
1	Organizational and preparatory	Receiving an individual assignment for practice from the head	2	-	2
2		Workplace safety briefing (laboratory and / or production)	2	-	2
3	Main	Acquaintance with the educational work of the Department of Mechanics and Mechatronics	-	10	10
4		Development of teaching materials	2	40	42
		Conducting classes and implementing the developed training tools	-	100	100
5		Ongoing control of the internship by the head	10	-	10
		Keeping an internship diary	-	10	10
9	Reporting	Preparation of a presentation on the passage of pedagogical practice	-	30	30
10		Intermediate certification (preparation and presentation)	10	-	10
BCEFO:			26	190	216
4 TERM					
№ п/п	Stages of practice	Types of work carried out by students	Educational work by forms, academic hours		Total, academic hours.
			<i>Contact work</i>	<i>Other forms of educational work</i>	
1	Organizational and preparatory	Receiving an individual assignment for practice from the head	2	-	2
2		Workplace safety briefing (laboratory and / or production)	2	-	2

3	Main	Acquaintance with the educational work of the Department of Mechanics and Mechatronics	-	2	2
4		Development of teaching materials	2	20	22
		Conducting classes and implementing the developed training tools	-	48	48
5		Ongoing control of the internship by the head	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a presentation on the passage of pedagogical practice	-	10	10
10		Intermediate certification (preparation and presentation)	8	-	8
BCEFO:			22	86	108

5 TERM

№ п/п	Stages of practice	Types of work carried out by students	Educational work by forms, academic hours		Total, academic hours.
			Contact work	Other forms of educational work	
1	Organizational and preparatory	Receiving an individual assignment for practice from the head	2	-	2
2		Workplace safety briefing (laboratory and / or production)	2	-	2
3	Main	Acquaintance with the educational work of the Department of Mechanics and Mechatronics	-	2	2
4		Development of teaching materials	2	20	22
		Conducting classes and implementing the developed training tools	-	48	48
5		Ongoing control of the internship by the head	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a presentation on the passage of pedagogical practice	-	10	10
10		Intermediate certification (preparation and presentation)	8	-	8
BCEFO:			22	86	108

6 TERM

№ п/п	Stages of practice	Types of work carried out by students	Educational work by forms, academic hours		Total, academic hours.
			Contact work	Other forms of educational work	
1	Organizational and preparatory	Receiving an individual assignment for practice from the head	2	-	2

2		Workplace safety briefing (laboratory and / or production)	2	-	2
3	Main	Acquaintance with the educational work of the Department of Mechanics and Mechatronics	-	2	2
4		Development of teaching materials	2	20	22
		Conducting classes and implementing the developed training tools	-	48	48
5		Ongoing control of the internship by the head	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a presentation on the passage of pedagogical practice	-	10	10
10		Intermediate certification (preparation for the defense and presentation of the results)	8	-	8
BCEFO:			22	86	108

For students from among persons with disabilities and / or belonging to the category of "disabled", if necessary, the head of the practice develops individual tasks, a plan and procedure for passing the practice, taking into account the peculiarities of their psychophysical development, individual capabilities and health status, an educational program adapted for these students (if any) and in accordance with individual rehabilitation programs for the disabled.

8. Educational, research and production technologies used in practice

In the process of passing the Pedagogical practice, the following educational technologies are used:

- contact work between the student and the teacher, which consists in receiving an individual assignment, undergoing safety briefing, receiving advice on internship issues, filling out current and reporting documentation, preparing and making a presentation based on the results of internship, as well as preparing and defending a report on the passage practice;
- other forms of educational work (educational activities), which include the main activity of the student on the implementation of sections of practice in accordance with the individual task, recommended methods and literature sources, aimed at the formation of certain professional skills or experience of professional activity provided for by the practice program, as well as filling out the current and reporting documentation, and preparing for the defense of the report on the passage of internship.

During the internship, the following research and development technologies are used:

- mastering by students the methods of information analysis and interpretation of the results of research activities;
- execution of written analytical and calculation tasks within the framework of practice using recommended information sources;
- the use of various computer software products for graphic, analytical and / or industrial purposes (depending on the place of internship and the specifics of the task);
- use by students of various electronic library and legal reference systems, etc.

9. Educational-methodical and informational support of educational practice

Main literature:

1. Development of the professionalism of a higher school teacher. ucheb.-method. allowance. Ed. 2nd, sr. / V. S. Agapov [et al.] .- M .: Publishing house of RAGS, 2017.-384 p. http://lib.rudn.ru/MegaPro2/UserEntry?Action=Rudn_FindDoc&id=470098&idb=0.
2. Miroshnichenko N. A., Stefanov S. A. To help a young teacher. method. allowance / N. A. Miroshnichenko, S. A. Stefanov.- Odessa: Legal Literature, 2003.-92 p.
3. Skok G.B., Lygina N.I. How to design the educational process for the course: Study guide. Ed. second, revised and add. - M .: Pedagogical Society of Russia. 2017 .-- 96p. http://lib.rudn.ru/MegaPro2/UserEntry?Action=Rudn_FindDoc&id=470098&idb=0
4. Lapaeva M.G., Lapaev S.P .; Ministry of Education and Science of the Russian Federation, Federal State Budgetary Educational Institution of Higher Education "Orenburg State University". - Orenburg: OSU, 2017 .-- 249 p .: ill. - Bibliography. in the book. - ISBN 978-5-7410-1791-3; [Electronic resource]. - URL: <http://biblioclub.ru/index.php?page=book&id=485476> (06.05.2018). \
5. Management of the quality of education: Practice-oriented monograph and methodological manual / Ed. M.M. Potashnik. M., 2016. URL: <http://biblioclub.ru/index.php?page=book&id=230540>.

Additional literature:

1. *FSES of HE 09.06.01 "Informatics and computer technology"*
2. *Local acts of Federal State Autonomous Educational Institution of Higher Education RUDN University*
3. *Work programs of disciplines of the Department of Mechanics and Mechatronics in the directions 27.03.04 "Control in technical systems", 27.04.04 "Control in technical systems"*.

Periodicals:

1. *Journal "Expert"*
 2. *Journal "Automation and control in technical systems"*
 3. *Journal "Control systems, communications and security"*
- Ресурсы информационно-телекоммуникационной сети «Интернет»:*

1. *EBS of RUDN University and third-party EBS, to which university graduate students have access on the basis of concluded agreements:*

- RUDN University Electronic Library System - RUDN University Library System <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

- EBS "Doe" <http://e.lanbook.com/>

2. *Databases and search engines:*

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- SCOPUS abstract database <http://www.elsevier.com/locate/scopus/>

Software:

During the practice, it is possible to use the following specialized software:

- MATLAB R2008b (361405 2008);
- Mathcad 14 (7A1354555);
- Borland Developer Studio 2006 (License Certificate Number: 33080, 33081, 33082);

Methodological materials for passing practice, maintaining current and preparing reporting documentation for students (also posted in the TUIS RUDN University in the relevant section of the discipline):

1. Methodical instructions for passing practice, maintaining current and preparing reporting documentation for students in the direction 09.06.01 Informatics and computer technology, profile Mathematical modeling, numerical methods and program complexes (Engineering) (Appendix 2).

10. Material and technical support of educational practice

For the successful implementation of educational practice for obtaining primary professional skills and abilities, it is necessary: a workplace, a computer, a printer, a library fund.

To process the materials collected by the student during the practice to obtain professional skills and professional experience, there is access to computer classes.

The library fund must provide students with basic literature in the amount of 0.5 copies per person.

Also, students are allowed to use Internet at University Institutions.

11. Forms of practice certification

In the process of passing the practice, the teacher carries out current control of the student's implementation of the assignment for practice. Based on the results of the practice, intermediate certification is provided in the form of a set-off with an assessment (based on the results of the defense of the report on practice).

12. Fund of assessment tools for intermediate certification trainees in practice

The fund of assessment tools, formed for the current monitoring of progress and intermediate certification of students in the Practice for obtaining professional skills and professional

experience (research) is presented in Appendix 1 to the work program of the practice and includes:

- a list of competencies formed in the course of internship;
- description of indicators and criteria for assessing competencies, description of assessment scales;
- typical control tasks or other materials necessary to assess knowledge, skills, skills and (or) experience of activities, characterizing the level of competence formation;
- methodological materials that determine the procedures for assessing knowledge, skills, abilities and (or) competencies, characterizing the level of competence formation.