

«RUDN University»

Engineering Academy

WORKING PROGRAM OF PRACTICE

Practice type: Internship

Type (name) of practice: Pedagogical practice

Direction: 01.06.01 Mathematics and Mechanics

Scientific specialty: Dynamics, strength of machines, devices and equipment (Technical Science)

Moscow,
2021

1. Purpose and objectives of the practice

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, planning, organizing, and conducting the educational process in higher educational institutions; acquisition of work skills 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;
- to learn how to conduct classes in technical disciplines;
- to master the primary skills of modeling lessons, drawing up programs and projects, planning individual lessons and developing a special course, choosing an effective organization strategy.

2. Place of the practice in the structure of the educational program of higher education

Pedagogical Practice belongs to the variable part of Block 2 of the curriculum. It is based on the material of previous disciplines and/or practices, and it is also the basis 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

№	Preceding disciplines/practices	Subsequent disciplines
1	Fundamentals of teaching methods for the development of engineering applications based on mathematical modeling using informatics and computer technology in higher education	State final certification
2	Research Seminar	

3. Ways of conducting practice

The methods of conducting Pedagogical Practice are:

- stationary.

4. Practice scope and types of educational work

Table 2 – Practice scope and types of educational work

Type of educational work	Total, ac. hours	Semester			
		4	5	6	7
Contact work of the student with the teacher, including control	92	26	22	22	22

Other forms of educational work, including keeping a diary of practice and preparing a report by the student		448	190	86	86	86
Type of certification test			Grade d test	Graded test	Graded test	Graded test
Total labor intensity	academic hours	540	216	108	108	108
	credit units	15	6	3	3	3
Duration of practice	weeks	Distribute d	Distri buted	Distrib uted	Distrib uted	Distribute d

5. Place of the 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 base 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 RUDN University.

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

Graduate students with disabilities and/or those belonging to the category of "disabled" undergo practical training in an accessible form to them in the laboratories of the university, as well as in specialized organizations which have subscribed relevant agreements, and which have the opportunity (equipment, special means and infrastructure) to work with these categories of citizens.

6. List of the planned results of the internship, correlated with the planned results of the development of the educational program

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

- readiness for teaching in the basic educational programs of higher education (GPC-2);
- readiness to teach training courses, disciplines (modules), conduct certain types of training sessions in Russian and foreign languages in higher education programs (PC-7).

- ability to organize educational, research and project activities of students in higher education programs (PC-8).

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

Table 3 - Learning outcomes in each discipline, correlated with the planned results of mastering OIIOII BO

Competence	Knowledge	Abilities	Skills
1	2	3	4
readiness for teaching in basic educational programs of higher education (GPC-2)	- regulatory framework for teaching in the higher education system	- select and use the best teaching methods	- domain of the technology of designing the educational process at the level of higher education
readiness to teach training courses, disciplines (modules), conduct certain types of training sessions in Russian and foreign languages for higher education programs (PC-7)	- knowledge of foreign languages, modern educational technologies	- form, select, structure and present educational material, prepare for training sessions	- domain of skills in the development of methodological support of the discipline with management skills of students' cognitive activity
ability to organize educational, research and project activities of students in higher education programs (PC-8)	- knowledge of the organization of educational, research and project activities	- to form, create, carry out educational, research, project activities	- domain of the skills of organizing educational, research and project activities

7. Structure and content of the practice

3 SEMESTER					
№	Practice Stages	Types of work carried out by students	Educational work types, academic hours		Total, ac. 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	Fundamental	Acquaintance with the educational work of the	-	10	10

		Department of Mechanics and Mechatronics			
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 supervisor	10	-	10
		Keeping an internship diary	-	10	10
9	Reporting	Preparation of a presentation about the performance of teaching practice	-	30	30
10		Intermediate certification (preparation and presentation)	10	-	10
TOTAL:			26	190	216
4 SEMESTER					
№	Practice Stages	Types of work carried out by students	Educational work types, academic hours		Total, ac. 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	Fundamental	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 supervisor	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a presentation about the performance of teaching practice	-	10	10
10		Intermediate certification (preparation and presentation)	8	-	8
TOTAL:			22	86	108
5 SEMESTER					

№	Practice Stages	Types of work carried out by students	Educational work types, academic hours		Total, ac. 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	Fundamental	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 supervisor	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a presentation about the performance of teaching practice	-	10	10
10		Intermediate certification (preparation and presentation)	8	-	8
TOTAL:			22	86	108

6 SEMESTER

№	Practice Stages	Types of work carried out by students	Educational work types, academic hours		Total, ac. 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	Fundamental	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 supervisor	8	-	8
		Keeping an internship diary	-	6	6
9	Reporting	Preparation of a report about the pedagogical practice	-	10	10
10		Intermediate certification (preparation for defense and defense of the report)	8	-	8
TOTAL:			22	86	108

For students 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, considering 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 scientific-production technologies used in practice

During the Pedagogical Practice, the following educational technologies are used:

- contact work of a student with a 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 the internship, as well as preparing and defending a report about the practice;

- other forms of educational work (educational activity), 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 by the practice program, as well as on filling current and reporting documentation, and preparation for the defense of the report about the internship.

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

- assimilation of the methods of information analysis and interpretation of the results of research activities;

- execution of written analytical and calculation tasks within the framework of the practice using recommended information sources;

- use of various computer software products for graphic, analytical and/or industrial purposes (depending on the place of the internship and the specifics of the task);

- use of various electronic library and legal reference systems, etc.

9. Educational-methodical and informational support for the educational practice

Main literature:

1. Razvitie professionalizma prepodavatelya vysšej shkoly. ucheb.-metod. posobie. Izd. 2-e, ster./ V. S. Agapov [i dr.].- M.: Izd-vo RAGS, 2017.- 384 s.
http://lib.rudn.ru/MegaPro2/UserEntry?Action=Rudn_FindDoc&id=470098&idb=0.
2. Miroschnichenko N. A., Stefanov S. A. V pomoshch' molodomu prepodavatelyu. metod. posobie/ N. A. Miroschnichenko, S. A. Stefanov.- Odessa: Yuridichna literatura, 2003.-92 s.
3. Skok G.B., Lygina N.I. Kak sproektirovat' uchebnyj process po kursu: Uchebnoe posobie. Izd. vtoroe, pererab. i dopoln. – M.: Pedagogicheskoe obshchestvo Rossii. 2017. – 96s.
http://lib.rudn.ru/MegaPro2/UserEntry?Action=Rudn_FindDoc&id=470098&idb=0
4. Lapaeva M.G., Lapaev S.P.; Ministerstvo obrazovaniya i nauki Rossijskoj Federacii, Federal'noe gosudarstvennoe byudzhethoe obrazovatel'noe uchrezhdenie vysshego obrazovaniya «Orenburgskij gosudarstvennyj universitet». – Orenburg: OGU, 2017. – 249 s.: il. – Bibliogr. v kn. - ISBN 978-5-7410-1791-3; [Elektronnyj resurs]. – URL: <http://biblioclub.ru/index.php?page=book&id=485476> (06.05.2018).\
5. Upravlenie kachestvom obrazovaniya: Praktiko-orientirovannaya monografiya i metodicheskoe posobie/ Pod red. M.M. Potashnika. M., 2016. URL: <http://biblioclub.ru/index.php?page=book&id=230540>.

Additional literature:

1. OS VO RUDN University (higher education level - training of highly qualified personnel) program 06.01.01 Mathematics and Mechanics
2. Local acts of RUDN University
3. Programs of disciplines of the Department of Mechanics and Mechatronics within the field 27.03.04 "Control in technical systems", 27.04.04 "Control in technical systems".

Periodical literature:

1. Journal «Ekspert»
2. Journal «Avtomatizaciya i upravlenie v tekhnicheskikh sistemah»
3. Journal «Sistemy upravleniya, svyazi i bezopasnosti»

Resources of the information and telecommunications network "Internet":

1. EBS of RUDN University and third-party EBS, to which PhD students have access within the framework of agreements:

- E-library of RUDN University - EBS RUDN <http://lib.rudn.ru/MegaPro/Web>
- EBS «Universitetskaya biblioteka onlajn» <http://www.biblioclub.ru>
- EBS Yurajt <http://www.biblio-online.ru>
- EBS «Konsul'tant studenta» www.studentlibrary.ru
- EBS «Lan'» <http://e.lanbook.com/>

2. Databases and search engines:

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

Softwares:

During practices, 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 educational practice, reports maintenance and preparation for students (they are also in the system TUIS RUDN University in the appropriate section of the discipline):

1. Methodical instructions for the educational practice, reports maintenance and preparation for students of the field training 01.06.01 Mathematics and mechanics, program: Dynamics, strength of machines, devices and equipment (Appendix 2).

10. Material and technical support of pedagogical practice

For the successful development of Pedagogical Practice, is needed: a workplace, a computer, a printer, a library fund.

To process the information collected by the graduate student during the practice, there is access to computer classes.

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

Also, graduate students are given the opportunity to use the Internet in the educational institution.

11. Forms of practice certification

In the process of approving the practice, the teacher carries out current control of the student's implementation of the practice assignment. Based on the results of the practice, intermediate certification is provided in the form of a graded test (based on the results of the defense of the report about the practice).

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

The fund of assessment tools, formed for the current monitoring of progress and intermediate certification of students in the Pedagogical practice 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, skills and (or) experience of activities, characterizing the level of competence formation.

Developer

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ИЭС/ИИСТ

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