

*Federal state autonomous educational institution of higher education  
Peoples' Friendship University of Russia*

*Faculty of physical, mathematical and natural sciences*

Adopted by the Scientific council of  
Faculty of physical, mathematical  
and natural sciences

A handwritten signature in blue ink, appearing to be 'P. P. P.', is written over a faint, illegible stamp.

Chairman of Scientific council

### **Program of pedagogical practice**

Recommended for educational program  
01.06.01 « Mathematics and mechanics»

Graduate's qualification: the Researcher. Teacher-researcher

## **1. Goals of pedagogical practice**

The purpose of the pedagogical practice is the formation of graduate students positive motivation for pedagogical activity and professional competencies that ensure readiness for the implementation of the educational process in higher educational institutions, as well as:

- \* formation of universal, General professional and professional competences;
- \* consolidation and deepening of theoretical knowledge in the studied disciplines;
- \* mastering the necessary methods of training and education in the educational field;
- \* familiarization with the social environment of an educational institution in order to acquire social and personal competencies necessary for work in the field of education;
- \* formation and consolidation of skills of pedagogical activity, application of the knowledge and skills received at training in the independent professional activity supervised by the curator of practice and/or the scientific adviser of the graduate student.

## **2. Tasks of pedagogical practice**

The objectives of pedagogical practice are:

- \* acquisition of skills of teaching and educational work in higher education; acquisition of skills of preparation of reference, auxiliary, control, educational materials, presentations and their use in conducting classes;
- \* the study of modern technical and information tools that increase the effectiveness of training procedures, and their application in seminars and practical classes;
- \* deepening and consolidation of theoretical knowledge gained during training at the previous stages of higher education;
- \* acquisition and consolidation of stable skills in the student audience; consolidation and deepening of theoretical and methodological knowledge and practical skills of graduate students in compulsory and special disciplines of the relevant scientific specialty;
- \* acquisition and development of skills in the development of teaching materials related to the teaching of special disciplines;
- \* acquisition of experience in conducting educational work and application of modern educational technologies

## **3. The place of research practice in the structure of the Basic Educational Program**

Pedagogical practice of the graduate student is obligatory and belongs to the Block 2 "Practices" containing practices on obtaining professional skills and experience of professional activity.

Pedagogical practice in the system of training of highly qualified personnel is a component of professional training for scientific and pedagogical activity in higher education and is a type of practical activity of aspiring to implement the educational process in higher education, including the teaching of special disciplines, the organization of educational activities of students, scientific and methodological work on the subject, aimed at obtaining the skills of teaching.

Pedagogical practice for students in the main educational programs (profiles) of postgraduate studies in the direction 01.06.01 "Mathematics and mechanics" is part of the educational component provided by the curricula.

The basis of the content and methodological relationship of pedagogical practice with other parts of the BEP is the formation of universal, General professional and professional competencies listed in the objectives of the practice.

Requirements for the input knowledge, skills and readiness of students acquired as a result of the development of the previous parts of the BEP, and necessary for the development of pedagogical practice:

A graduate student, starting the development of pedagogical practice, should:

**Know:**

- scientific basis of the taught subject;
- content of the taught subject;
- value bases of professional activity in the field of education;
- the essence and structure of the educational process;
- modern problems of mathematics in the field of differential equations, optimal control and dynamical systems;
- methodology of pedagogical researches of problems of education;
- theory and technology of teaching and education of the student;
- ways of interaction of the teacher with various subjects of pedagogical process;
- ways of professional self-knowledge and self-development

**To be able to:**

- systematically analyze and select educational competencies;
- use diagnostic methods to solve various professional tasks;
- to take account of the pedagogical interaction of various features of students;
- to design the educational process with the use of modern technologies corresponding to General and specific patterns and especially to the development of personality;
- to design elective courses using the latest achievements of Sciences;
- to use in the educational process a variety of resources, including the potential of other subjects; to organize extracurricular activities of students;
- to use theoretical knowledge to generate new ideas in the field of education;

**Possess skills:**

- ways of orientation in professional sources of information ( magazines, websites, educational portals, etc.)
- various means of communication in professional pedagogical activity;
- methods of project and innovative activity in education;
- ways to improve professional knowledge and skills by use of opportunities of the information environment of educational institution;
- technologies to acquire use and update humanitarian, social, economic and professional knowledge.

#### 4. Forms of pedagogical practice

The main form of pedagogical practice is the practice of obtaining professional skills and experience of professional activity in pedagogical work.

To guide practice, the relevant Department shall appoint the Manager (s) practice among individuals, pertinent to the faculty of this Department (hereinafter - the supervisor from the relevant Department).

Head of practice from chair and/or supervisor of graduate student plans, organizes and supervises teaching activities of a graduate student, charging him fulfilling the program specific procedures training. The graduate student in this case performs the functions of an Intern, participating throughout the entire period of practice in the teaching activities of his supervisor.

Head of practice from the Department:

\* together with the head of practice from the organization makes the working schedule (plan) of carrying out practice develops individual tasks for performance trained during practice;

\* participates in the distribution of students by jobs and types of work in the organization engaged in professional activities;

\* monitors compliance with the terms of practice and compliance of its content with the educational program requirements for the content of the relevant type of practice (hereinafter - the requirements for the content of practice);

\* provides methodological assistance to students in the performance of individual tasks, as well as in the collection of materials for the practice;

\* evaluates the results of practical training of students

The content of the practice can be expressed in the participation and conduct of the graduate student, both under the guidance of the teacher and in his presence of lectures, seminars, consultations, practical classes, laboratory work, control work, colloquiums, technical control, intermediate certification, organization of independent work of students.

The total amount of teaching practice for graduate students in accordance with the educational plans is 792 academic hours (22 credits) and includes:

\* independent work (preparation for classes, study of scientific, methodical and recommendatory materials, normative documents, publications on academic discipline, analysis and choice of methods, technologies of training; study of didactic materials, preparation of the report on practical training, etc.);

\* performance of pedagogical tasks (lectures, seminars, practical and laboratory work, management of coursework, research work of students).

According to the results of the pedagogical practice at the annual certification, the graduate student submits the following report to the Department:

- individual plan of pedagogical practice;

- report on the passage of pedagogical practice.

If a graduate student is a teacher of PFUR or other educational institution of higher education, his pedagogical activity can be credited by the Department as a pedagogical practice. At the same time, graduate students provide appropriate supporting documents to the Department.

The supervisor is obliged to provide advice on practical training, conducting lectures and seminars (practical) classes by the Intern, as well as drawing up a report.

## **5. Place and time of pedagogical practice**

Pedagogical practice is stationary practice and is carried out in structural divisions of PFUR.

A stable base of pedagogical practice is the Department that implements the profile of post-graduate studies. Can be carried out in other structural divisions of University and the organizations in the presence of the corresponding contract approved in the order established in University.

It is carried out on-the-job from theoretical training on 2, 3, 4, 5, 6, 7 semester.

## **6. Competence of the student, formed as a result of pedagogical practice**

As a result of this practice, the student must acquire the following practical skills, abilities, General professional competence:

GPC-2: readiness for teaching in the main educational programs of higher education

As a result of the pedagogical practice the graduate student should demonstrate the following results:

### 1) Know:

- general scientific approaches to solving methodological problems;
- psychological and pedagogical features of training;
- modern technologies of training at the levels of the subject, section, topic

### 2) To be able to:

- to organize educational process of training at different stages and profiles of training in the higher school;
- to carry out planning of educational work;
- to carry out the learning process with a focus on the tasks of training, education and development of the student's personality and taking into account the specifics of teaching;
- rationally select the content of any organizational form of training, highlighting the main, essential and concentrating on it the attention of students;
- optimally select the methods of organization of educational activities, methods of stimulation and control, taking into account the peculiarities of the content of the topic and the individual capabilities of each student;
- to use information technologies in conducting educational work;
- analyze their own activities in order to improve it and improve their skills;
- to use the advanced pedagogical experience, to combine traditional and innovative technologies of training.

### 3) Possess skills:

- skills to set goals and formulate tasks of pedagogical activity, to predict the development and education of the student's personality;
- conceptual and categorical apparatus of methodical science;
- skills of professional self-assessment activities.
- methodology of scientific and practical professional activity.

## 7. Structure and content of pedagogical practice

The total complexity of the practice is 22 credits, 792 academic hours.

	The sections (phases) practices The sections (phases)	Types of production work, including independent work and labor intensity (in hours)		Forms of current control
		Lab.	Forms of current control	
	Preparatory	56	58	oral survey
	Main	288	360	differentiated credits
	Final	4	26	written report

### *Activities in practice*

#### *Stage 1 (preparatory):*

Lecture, where students are introduced to the rules of labor protection, safety, with the goals, objectives and content of pedagogical practice. In addition, students receive advice on

documentation, installation to communicate with the staff of the educational institution. The individual task for practice with the head of practice is made.

In an educational institution, graduate students get acquainted with the tasks of educational and methodical work of a particular institution, with the administration, teaching staff, with students.

At this stage of pedagogical practice, graduate students begin to study the educational process, attend classes and in conclusion, an oral survey is conducted on the materials that the graduate student studied during this stage. The results of the survey are recorded by the mark "off-set", "failure".

**Stage 2 (main):**

1. replenishment of the professional knowledge in the field of the taught discipline by means of self-training;
2. study of teaching experience of leading teachers, technical assistance to the scientific head in conducting lectures, seminars and practical classes with students;
3. preparation of training materials for seminars, practical and laboratory studies on the taught discipline and providing them for testing to the head;
4. development under the supervision and with the help of the head of the plan and the text of the lecture or the plan of practical (seminar) classes and presentations on one of the main and relevant topics of the taught course, coinciding (ideally) with the theme of his dissertation research;
5. conducting seminars and practical classes with students under the guidance of the supervisor;
6. carrying out under the guidance of the supervisor of activities on current and intermediate control of students;
7. consultations with students;
8. participation together with the head in preparation and improvement of educational programs on the taught course, methodical instructions for carrying out practical, seminars on separate subjects;
9. participation under the supervision of the head in the management of the students of course work, verification, evaluation.

*The third (final) stage* provides for summing up the practice. Graduate students summarize their teaching experience in reports and reports. Teachers analyze their activities, note their difficulties and the most successful solutions to the tasks in the course of classes. The overall assessment for the practice consists of assessments for the conduct of classes and educational activities, taking into account the attitude of each graduate student to pedagogical activity in the center, participation in the analysis of classes and documentation.

## **8. Research and production technologies used in practice**

### **Information support of discipline:**

Only licensed software installed in the PFUR is used:

- software package Microsoft Office;
- multimedia equipment and personal computers;
- full-text databases and resources which can be accessed from the network PFUR;

## **9. Educational and methodical support of independent work of students on pedagogical practice**

Independent work under the guidance of the teacher provides preparation for conducting, as well as conducting (in the presence and under the supervision of the teacher) seminars and practical classes in an interactive form;

Independent work of the graduate student includes planning of educational process, development of educational and methodical, control and measuring materials, methodical materials for electronic courses.

During the internship the graduate student is obliged to:

1. to study and strictly observe the rules of labor protection, safety;
2. fully perform the scope of work provided by the program of practice;
3. be responsible for the work performed and its results;
4. timely submit a written report on the practice.

According to the results of pedagogical practice, the graduate student should prepare a detailed written report. The report provides General information (surname, name, patronymic; type of practice; period of practice), indicates information about the work performed by the graduate student during the practice, reflects the results of the practice, taking into account the acquired knowledge, skills and abilities, notes the problems encountered during the organization and practice.

The report is accompanied by a diary of practice, signed by the graduate student and the scientific Director, as well as documents that contain information about the results of the student's work during the period of pedagogical practice:

prepared by a graduate student working program of the discipline; texts of lectures or guidelines for practical classes on certain topics;  
tasks for control works;  
test tasks, etc.

The report on the practice of the graduate student must be approved by the supervisor and then he can get credit for the practice.

## **10. Educational-methodical and information support of pedagogical practices**

### **Databases, reference and search engines**

<http://www.gumer.info> –  
<http://lib.rudn.ru/> - library website of PFUR  
<http://web.redline.ru/> Russian Academy of humanitarian studies.  
<http://www.rsl.ru> Official website of the Russian state library  
<http://www.koob.ru/pedagogics/>  
<http://www.v-library.ru/> Virtual library of pedagogical literature digests  
<http://www/ioso.iip.net/> Russian education Academy. Institute of General secondary education.  
<http://www.ict.edu.ru/> Specialized portal on information technologies in education.

## **11. Fund of assessment tools for carrying out the interim assessment of scientific research**

FAT on discipline is presented in the Appendix to this program.

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