MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION

Federal State Autonomous Education “Ural Federal University named after the first President of Russia B.N. Yeltsin”

Institute of Construction and Architecture

Signed and Approved

Vice-rector for Research

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ V.V. Kruzhaev

«\_\_\_» \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2018 г.

**PRACTICAL TRAINING PROGRAM**

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| **Information about the course program** | **Accounting data** |
| **Education program**  The main education doctoral graduate program | **Specialty code**  08.06.01/09.11 |
| **Major**  Engineering and Construction Technologies  **Training programs:**  Building structures, buildings and constructions  Building bases and foundations, underground constructions  Heat supply, ventilation, air conditioning, gas supply and lighting  Water supply, sewerage, engineering of water resources protection systems  Structural theory | **Training program code**  08.06.01 |
| **Level of training**  Highly qualified personnel |
| **Federal State Educational Standard** | **The Ministry of Education and Science of the Russian Federation approval FSES HE order details:**  July 30, 2014 No. 873  (revised April 30, 2015) |

**Ekaterinburg**

**2018**

**1. GENERAL CHARACTERISTICS OF PRACTICAL TRAINING PROGRAMS**

**1.1. Abstract**

**Abstract of practice training program aimed at obtaining professional skills and experience (Scientific (internship) practical training)**

Scientific (internship) practical training is a component of professional training in the system of postgraduate education for scientific research, technological professional activities. It is a kind of practical activity of graduate students in the implementation of research processes in scientific research, industrial and educational institutions, scientific and methodological work, obtaining skills and practical scientific research activities.

Scientific(internship) practical training of postgraduate students is an integral part of the main education doctoral graduate program. It is one of the important types of educational process, where the direct preparation of graduate students for their professional scientific and pedagogical activities is provided.

The program of Scientific (internship) practical training for graduate students of the Urban Construction Department of Institute for Construction and Architecture of UrFU (further the Program) regulates the procedure and forms of internship for graduate students in full-time education.

Scientific (internship) practical training is provided by the curriculum of the specialty and is conducted at the graduating department.

Professional formation of scientific and pedagogical skills and skills is carried out in stages in the learning process, which determines the content, scope, focus of practice.

*Objectives, Tasks and Planned results of mastering scientific (internship) practical training*

*Objectives*:

1. Systematization of theoretical knowledge obtained during the development of theoretical courses and independent scientific research;

2. Study of the content of scientific activity, corresponding scientific activity of the direction "Engineering and technology of construction";

3. Expansion of the scientific outlook in the field of equipment, technologies and organization of foundry production;

4. Development of practical skills of scientific, industrial and innovative activities and organization of scientific and industrial activities in leading research institutes.

*Tasks*:

1. Acquaintance with the content of theoretical and practical activities corresponding to the major “Engineering and Construction Technologies”

2. Formation and systematization of theoretical and practical material, corresponding to the direction of the dissertation research in the field of “Engineering and Construction Technologies”;

3. Selection of the necessary information for continuing research in the professional field;

4. Forming in the future specialists of the highest qualification the relevant professional qualities;

5. Preparing of an individual task.

The process of completing scientific (internship) practical training course is aimed at forming the elements of the following competencies:

1. the ability to critically analyze and evaluate current scientific achievements, generate new ideas in solving research and practical problems, including in interdisciplinary areas (UC-1);

2. willingness to join Russian and international research teams to take part in researches solving scientific and scientific-educational problems (UC-3);

3. the ability to professional operation of modern research equipment and instruments (GPC -4);

4. the ability to present the results of their research professionally in the form of scientific publications and presentations (GPC -5);

5. the ability to develop new research methods and their application in independent research activities in the field of architecture, with respect to copyright (GPC -6);

6. the ability to develop physical and mathematical models of objects and processes in the design of engineering structures, structures and processes (PC-1);

7. the ability to analyze and synthesize engineering structures and structures, develop new ones and develop existing methods for their calculation and optimization (PC-2);

8. readiness to use modern software of design and calculation systems, knowledge of programming languages ​​in the field of design and technological preparation, means of automated design of products, systems and processes (PC-3);

9. The ability to develop and improve the composition and technology of production and use of building materials, products and structures (PC-4).

**Abstract of practice training program aimed at obtaining professional skills and experience (Teaching practicum)**

Teaching practicum in the system of postgraduate education is a component of professional training for scientific and pedagogical activity in a higher educational institution. It is a kind of practical activity of graduate students in the implementation of the teaching and educational process in higher education, which includes the teaching of special disciplines, the organization of student learning activities, scientific and pedagogical work on the subject, and the acquisition of skills in practical teaching.

Teaching practicum of graduate students is an integral part of the main education doctoral graduate program, one of the important types of educational process, in which direct preparation for their professional scientific and pedagogical activities is carried out.

The teaching practicum practice training programfor graduate students of the Department of Heat and Gas Supply and Ventilation of the UrFU Construction Institute (the Program) regulates the order and forms of the pedagogical practice of postgraduate students in full-time education.

Teaching practicum is provided for by the curriculum of the specialty and at the graduating department.

Professional formation of scientific and pedagogical skills and skills is carried out in stages in the learning process, which determines the content, scope, direction of scientific and pedagogical practice.

*Objectives, tasks and planned results of mastering the teaching practicum practice training program*

Objectives:

* development of professional-pedagogical abilities;
* possession of the fundamentals of pedagogical activity, skills and skills of independent conduct of teaching, educational and teaching work;
* acquisition of the skills of a teacher-researcher, who possesses modern tools of science for searching and interpreting information material for the purpose of its use in pedagogical activity.

Tasks:

* to form ideas about the content of the educational process in the direction (profile) of training in the field of construction production (bachelor's, master's).
* develop analytical and reflexive activities as an element of the professionalism of beginning teachers.
* to form the skills of preparing and conducting training sessions with students, including using information technology.
* master the methods of teaching, preparing and conducting lecture and practical classes with undergraduate and graduate students, to consolidate knowledge in this field in practice.

The process of completing the teaching practicum is aimed at the formation of the following competencies:

* ability to follow ethical standards in professional activities (UC-5);
* the ability to plan and solve the tasks of one's own professional and personal development (PC-6);
* readiness for teaching activities in the main educational programs of higher education (GPC-8).

1.5. **Planned learning outcomes**

After mastering the program, the graduate student must acquire the following competencies:

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| № | **Type of practical training** | **Learning outcomes** |
| 1. | Teaching practicum | UC-5, UC-6,  GPC-8 |
| 2. | Scientific (internship) practical training | UC-1, UC-3,  GPC-4, GPC-5, GPC-6,  PC-1, PC-2, PC-3, PC-4 |

After mastering the program, the graduate student must acquire demonstrate professional practical abilities, skills and experience of following actions:

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| № | **Type of practical training** | **Learning outcomes** |
| 1. | Teaching practicum | *To be able to:* develop a methodology of designing the educational process for the course on the example of one of the disciplines  *Demonstrate skills and experience:* lecturing in student auditoriums under the supervision of a head teacher of the department |
| *To be able to:* develop a lecture plan on the subject of the training course;  *Demonstrate the skills and experience of the activity:* conducting practical and laboratory classes with students under the supervision of a teacher on the recommended topics of academic disciplines |
| 2. | Scientific (internship) practical training | *To be able to:* use modern means of receiving, storing, processing information;  *Demonstrate skills and experience:* working with distributed knowledge bases in global computer networks; |
| *To be able to:* correlate new knowledge gained with domestic and foreign studies;  *Demonstrate the skills and experience of the activity:* independent creative work; |
| *To be able to:* form, argue and defend their own position in a professional environment;  *Demonstrate the skills and experience of the activity:* analysis and evaluation of modern macro- and microeconomic problems*;* |

**2. CONTENT OF PRACTICES**

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| **№** | **Type of practical training** | **Stages** | The content of educational, practical, independent works |
| **1** | **Teaching practicum** | Drawing up a plan for practice | Development of a practice plan certified by the practice leader |
| Study of the regulatory framework:  State educational standard of professional education, curricula for the preparation of bachelors, masters | Drawing up a report on working with documents |
| Educational and programmatic documentation, its analysis and development principles | Development of a fragment of the curriculum (which includes the sessions conducted) |
| Material and technical equipment of the educational process. Planning of the educational process in accordance with the material and technical base | Analysis of the material and technical equipment of the educational process |
| Experience in organizing training sessions in educational institutions and vocational education | Visit protocols (4 sessions) |
| Characteristics of the use of IT technologies in the educational process | Recommendations for using IT |
| Planning, development and implementation of consulting, practical, seminar and laboratory sessions | Techniques and synopses of lecture, practical, seminar and laboratory-practical (12 hours) sessions |
| Observation and analysis of studies as a method of control and quality of the learning process and the effectiveness of individual methodological systems | An in-depth analysis of 2 sessions based on the results of the mutual study of post-graduate students |
| Information technologies for the activation and intensification of students' activities | Development of recommendations on information technologies for one lesson |
| Methods of preparation and conduct of educational events | Methodical development of an educational event and a report on its conduct |
| Preparation of practice report | Report |

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| 2 | **Scientific (internship) practical training** | Preparatory stage:  - general guidelines for the implementation of research;  - general safety briefing | Synopsis;  Safety log entry |
| Acquaintance with the theme of the institution, the choice of areas of work | Report |
| Work on selected topics:    - planning, organizing and conducting an experiment;    - analysis of the results of the experiment and the preparation of a report; | Report |
| Drawing up a plan for conducting scientific | research work, or:  - drawing up an application for a grant, writing an article;  - drawing up technical specifications. | Copy document |
| preparation of a practice report and report at the meeting of the department | Report |

**4. base of materials for current academic performance Evaluation and interim assessment**

**Teaching practicum**

The management of teaching practicumis carried out by the academic supervisor of the graduate student. Monitoring the passage of teaching practicumis carried out by the head of the department.

The internship report should include a description of the work done by the graduate student. As an annex to the report, methodologies and texts of lectures or seminars, business games, cases, tasks, etc. should be presented.

Within a week after the end of the practice training course, submit a written report to the academic supervisor and the head of practice, prepared in accordance with Federal State Educational Standard. If necessary, the report is finalized in accordance with the recommendations of the academic supervisor.

According to the results of the practice, is provided the public presentation of the report that is used to evaluate teaching practicum:

- observation students during the practice: analysis and evaluation of certain types of their work;

- interviewing teachers, methodologists, heads of educational institutions, and students;

- student survey, students' self-assessment of the level of formation of skills;

- analysis of the reporting documentation of the postgraduate student in pedagogical practice in the form of a test based on a report and in-person observation of the activity in the practice of the postgraduate student.

**Scientific (internship) practical training**

The management of scientific (internship) practical trainingis carried out by the academic supervisor of the graduate student. Monitoring the passage of teaching practicumis carried out by the head of the department.

The internship report should include a description of the work done by the graduate student. As an annex to the report, should be presented methodologies and texts of lectures or seminars, business games, cases, tasks, etc.

Within a week after the end of the practice training course, submit a written report to the academic supervisor and the head of practice, prepared in accordance with Federal State Educational Standard. If necessary, the report is finalized in accordance with the recommendations of the academic supervisor. According to the results of the practice, is provided the public presentation of the report.

**5. METHODICAL AND INFORMATION SUPPORT**

***Teaching practicum***

**Search, information and reference systems**

1. Resources of the UrFU educational portal: http://lib.urfu.ru/course/view.php?id=76
2. electronic library system http://e.lanbook.com
3. electronic library system http://biblioclub.ru)