

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Ястребов Олег Александрович
Должность: Ректор
Дата подписания: 23.06.2023 12:55:50
Уникальный программный ключ: ca953a0120d891083f939673078ef1a989dae18a

**FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF
HIGHER EDUCATION
RUSSIAN PEOPLES FRIENDSHIP UNIVERSITY
(RUDN UNIVERSITY)**

Инженерная академия

(наименование основного учебного подразделения (ОУП)-разработчика ОП ВО)

ПРОГРАММА ПРАКТИКИ

Practice in Obtaining Professional Skills and Professional Experience
(Pedagogical practice)

(наименование дисциплины/модуля)

Рекомендована МССН для направления подготовки/специальности:

2.1.1. Building designs, buildings and constructions / Строительные
конструкции, зданий и сооружения (англ.)

2.1.9. Structural mechanics / Строительная механика (англ.)

(код и наименование научной специальности)

Освоение дисциплины ведется в рамках реализации основной профессиональной образовательной программы высшего образования (ОП ВО):

Building designs, buildings and constructions / Строительные конструкции, зданий и
сооружения (англ.)

Structural mechanics / Строительная механика (англ.)

(наименование программы аспирантуры)

1. Goals Of the Practice / ЦЕЛЬ ПРОВЕДЕНИЯ ПРАКТИКИ

The purpose of the «Pedagogical practice» is to improve the methodological and practical skills of conducting training sessions, including laboratory work and seminars (practical) classes.

The main tasks of pedagogical practice are:

- fostering a steady interest in the teaching profession, confidence in the correctness of its choice;
- development of systems of constructive skills for the organization, correction and control of the educational and educational process in the university;
- use, interpretation and improvement of the received theoretical and practical knowledge in the process of their application for the implementation of the pedagogical process, including in a foreign language;
- mastering the system of modern scientific knowledge in the field of pedagogy and psychology of higher education, as the basis of competent professional activity;
- preparation of methodological materials based on the results of the work performed with the wide use of modern information technologies;
- development of postgraduate students' need for self-education and self-improvement of professional and pedagogical knowledge and skills:
- development of ideas about the work of a modern educational institution;
- formation and development of research skills for the design and organization of innovative pedagogical activities,
- formation of the need for mastering psychological and pedagogical knowledge as personally significant;
- the formation of a creative approach and the use in practice of the skills and abilities of managing a team;
- formation of postgraduate students' professional skills necessary for the successful implementation of the educational process;
- formation, consolidation and approbation of knowledge and skills of graduate students and their readiness for independent professional activity.

The main objectives of the practice are:- to study scientific and technical information, domestic and foreign experience on the topic of research work;

- learn to set scientific and technical problems, to choose methodical ways and means of their decision, to process data for writing a master's thesis;

- To master primary skills and basic methods of statement and carrying out of experiments, gathering and analysis of results, identification of theory and experiment.

2. Requirements for the results of learning on the results of the practice / Требования к результатам обучения по итогам прохождения практики

The discipline «Pedagogical practice» is aimed at developing the following competencies among students. Its study is based on the material of previous disciplines, and it is also the basis for the study of subsequent disciplines of the curriculum, a list of which is presented in table 1.

Table 2.1. The list of competencies formed in students during the internship (learning outcomes based on the results of practice)

| Code and name of competence | Preceding disciplines | Code and name of competence |
|-----------------------------|--|--|
| UC-1 | Able to carry out critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy | UC-1.1 Analyzes the task, highlighting its basic components |
| | | UC-1.2 Determines and ranks the information required to solve the task |
| | | UC-1.3 Searches for information to solve the task on various types of requests |
| | | UC-1.4 Offers options for solving the problem, analyzes the possible consequences of their use |
| | | UC-1.5 Analyzes ways to solve problems of ideological, moral and personal nature on the basis of the use of the main philosophical ideas and categories in their historical development and socio-cultural context |
| UC-2 | Способен управлять проектом на всех этапах его жизненного цикла | UC-2.1 Formulates a problem, the solution of which is directly related to the achievement of the project goal |
| | | UC-2.2 Determines the relationship between the tasks set and the expected results of their solution |
| | | UC-2.3 Within the framework of the tasks set, determines the available resources and restrictions, the current legal norms |
| | | UC-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 limitations |
| | | UC-2.5 Monitors the progress of the project, adjusts the schedule in accordance with the results of the control |
| UC-3 | Able to organize and manage the work of the team, developing a team strategy to achieve the goal | UC-3.1 Defines its role in the team, based on the strategy of cooperation to achieve the goal |
| | | UC-3.2 Formulates and takes into account in its activities the peculiarities of the behavior of groups of people identified depending on the goal |
| | | UC-3.3 Analyzes the possible consequences of personal actions and plans his actions to achieve a given result |
| | | UC-3.4 Exchanges information, knowledge and experience with team members |
| | | UC-3.5 Argues his point of view regarding the use of ideas of other team members to achieve the goal |

| Code and name of competence | Preceding disciplines | Code and name of competence |
|-----------------------------|--|--|
| | | UC-3.6 Participates in teamwork on the execution of assignments |
| UC-6 | Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem | UC-6.1 Controls the amount of time spent on specific activities |
| | | UC-6.2 Develops tools and methods of time management in the implementation of specific tasks, projects, goals |
| | | UC-6.3 Analyzes its resources and their limits (personal, situational, temporary, etc.) for the successful implementation of the task |
| | | UC-6.4 Distributes tasks into long-, medium- and short-term with justification of relevance and analysis of resources for their implementation |
| UC-7 | Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data received from various sources с целью эффективного использования полученной информации для решения задач; проводить оценку информации, ее достоверность, строить логические умозаключения на основании поступающих информации и данных | UC-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 data received from various sources in order to effectively use the information received to solve problems. |
| | | UC-7.2 Evaluates information, its reliability, builds logical conclusions on the basis of incoming information and data |
| OPC-1 | Able to solve the problems of professional activity on the basis of the use of theoretical and practical foundations, the mathematical apparatus of fundamental sciences | OPC-1.1 Selects a mathematical model suitable for the professional task being solved, sets the required parameters, boundary conditions |
| | | OPC-1.2 Solves problems of mathematical moderation, using suitable analytical, numerical, or numerical-analytical methods |
| | | OPC-1.3 Solves professional problems using modern software systems for mathematical, digital modeling of structures |

| Code and name of competence | Preceding disciplines | Code and name of competence |
|-----------------------------|---|---|
| OPC-2 | Able to analyze, critically comprehend and present information, search for scientific and technical information, acquire new knowledge, including with the help of information technologies | OPC-2.1 Is able to search for scientific and technical information, including with the help of information technologies |
| | | OPC-2.2 Is able to analyze, critically comprehend information, acquire new knowledge |
| | | OPC-2.3 Is able to present found and meaningful information, including with the help of information technology |
| OPC-3 | Able to set and solve scientific and technical problems in the field of construction, construction industry and housing and communal services based on knowledge of the problems of the industry and experience in solving them | OPC-3.1 Is able to set and solve scientific and technical problems in the field of design of building structures |
| | | OPC-3.2 Is able to set and solve scientific and technical problems in the field of technology, organization, construction management and operation of capital construction facilities |
| | | OPC-3.3 Is able to set and solve scientific and technical problems in the field of designing engineering systems |
| OPC-6 | Able to carry out research of objects and processes in the field of construction and housing and communal services | OPC-6.1 Is able to formulate goals, set research objectives, draw up a research program |
| | | OPC-6.2 Is able to choose the appropriate methods of research and carry out the study according to the chosen methodology |
| | | OPC-6.3 Is able to carry out processing, analysis and design of research results |
| | | OPC-6.4 Is able to present and defend the results of the study |
| OPC-7 | Able to manage an organization operating in the construction industry and housing and communal services, organize and optimize its production activities | OPC-7.5 Is able to develop measures to improve the efficiency of work in the field of design, construction, operation of capital construction facilities |
| PC-1 | Conducting applied research in the field of engineering and technical design for urban planning activities | PC-1.1 Able to carry out planning, preparation for applied research in the field of engineering and technical design for urban planning activities |
| | | PC-1.2 Able to carry out, control, obtain the results of applied research in the field of engineering and technical design for urban planning activities |
| | | PC-1.3 Able to analyze and process the results of applied research in the field of |

| Code and name of competence | Preceding disciplines | Code and name of competence |
|-----------------------------|-----------------------|---|
| | | engineering and technical design for urban planning activities |
| | | PC-1.4 Able to design, coordinate, present the results of applied research in the field of engineering and technical design for urban planning activities |

3. Requirements for the results of mastering the discipline:

Таблица 3.1. Перечень компонентов ОП ВО, способствующих достижению запланированных результатов обучения по итогам прохождения практики

| Шифр | Наименование компетенции | Предшествующие дисциплины/модули, практики* | Последующие дисциплины/модули, практики* |
|------|--|--|---|
| UC-1 | Able to carry out critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy | Problem solving techniques in Civil Engineering / Methods of solving scientific and technical problems in construction; Mathematical methods of experimental data processing; Mathematical Modelling; Digital technologies in construction; Applications of Geoinformation Systems / Workshop on the Application of Geographic Information Systems; Project management; | Pre-Graduation Practice; Pedagogical Practice; Introductory Practice; Design Practice; Independent Research Work; Technological Practice; State Final Certification |
| UC2 | Able to manage the project at all stages of its life cycle | | |
| UC-3 | Able to organize and manage the work of the team, developing a team strategy to achieve the goal | | |
| UC-6 | Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem | | |
| UC-7 | Able to: search for the necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as using algorithms for work derived from various data sources in order to effectively use the information obtained to solve problems; evaluate | | |

| Шифр | Наименование компетенции | Предшествующие дисциплины/модули, практики* | Последующие дисциплины/модули, практики* |
|-------|---|---|--|
| | information, its reliability, build logical conclusions on the basis of incoming information and data | | |
| ОПС-1 | Able to solve the problems of professional activity on the basis of the use of theoretical and practical foundations, the mathematical apparatus of fundamental sciences | | |
| ОПС-2 | Able to analyze, critically comprehend and present information, search for scientific and technical information, acquire new knowledge, including with the help of information technologies | | |
| ОПС-3 | Able to set and solve scientific and technical problems in the field of construction, construction industry and housing and communal services based on knowledge of the problems of the industry and experience in solving them | | |
| ОПС-6 | Able to carry out research of objects and processes in the field of construction and housing and communal services | | |
| ОПС7 | Able to manage an organization operating in the construction industry and housing and communal services, organize and optimize its production activities | | |
| РС-1 | Conducting applied research in the field of | | |

| Шифр | Наименование компетенции | Предшествующие дисциплины/модули, практики* | Последующие дисциплины/модули, практики* |
|------|--|---|--|
| | engineering and technical design for urban planning activities | | |

* - заполняется в соответствии с матрицей компетенций и СУП ОП ВО

.As a result of studying the discipline, the student must:

Know:

- in the field of methods of mathematical analysis.
- know the state standards and be able to use them.
- basic methods of calculation and design of building structures.
- know the main theoretical provisions of the discipline:
- requirements for products and quality of information and theoretical support of the calculation base.
- knowledge of specialized software and computing systems.

Be able to:

- use modern information technologies.
- be able to use the appropriate computer developments.
- use modern software and computing systems for the calculation of building structures.
- use information technology to solve specific tasks.
- use information technology to solve specific tasks;
- use information technology in professional activities

Own:

- application of theoretical knowledge in practice.
- search for the necessary information.
- use of the latest automated projecting systems.
- use of information support in the calculation of structures and structures.
- organization of high-quality calculation of structures and structures.
- search for new software and computing systems to solve the tasks.

4.. SCOPE OF PRACTICE

The total labor intensity of the practice "Independent Research Work (obtaining basic skills of research work) is 21 credits (756 ak. h.).

5.. Sections of disciplines and types of classes

Table 5.1. Contents of the practice*

| Practice stages | Types of work carried out by students | Total, academic hours |
|--------------------------------|---|-----------------------|
| Organizational and preparatory | Receiving an individual assignment for practice from a supervisor | 1 |
| | Safety briefing in the workplace (laboratory and / or production). Setting the goal and objectives of the practice. Review and analysis of information on assigned disciplines. | 1 |
| Main | Conducting practical classes with students. The study of regulatory documents, the structure of the educational process, courses taught. | 70 |

| Practice stages | Types of work carried out by students | Total, academic hours |
|--|--|------------------------------|
| | Attendance at teachers' classes; independent preparation of plans and abstracts of classes in academic disciplines; selection and analysis of basic and additional literature. | 60 |
| | Participation in scientific and practical conferences, seminars and meetings of methodological sections; participation in the activities of the department for the development of work programs for disciplines. | 20 |
| | Ongoing control of the internship by the head | 10 |
| Preparing an internship report | | 9 |
| Intermediate attestation (preparation for protection and protection of the report) | | 9 |
| TOTAL: | | 180 |

* - содержание практики по разделам и видам практической подготовки ПОЛНОСТЬЮ отражается в отчете обучающегося по практике.

6. Material and technical support of the practice / Материально-техническое обеспечение проведения практики

Educational laboratory for laboratory and practical exercises - Laboratory of Building Materials and Building Structures, room. No. 24a. Combined testing machine C040N + C092-11 "MATESTA", Vibrating plates laboratory C282 MATEST and SMZH-539, Chamber-cabinet for normal hardening and wet storage KNT-72, Universal steaming chamber KUP-1, molds for concrete samples, concrete mixers-2 pcs., Concrete strength meter POS-50MG4, Vika devices, Aistova's device, Electronic moisture meter - MG4U, Ultrasonic flaw detector A1220 MONOLITH, Shaking table with a cone and ruler, etc. installations and testing devices.

Educational laboratory for laboratory and practical training - Laboratory of Soil Mechanics, No. 520a. Training and testing complex ASIS-1 "Automated test systems in construction", laboratory scales MWR-3000, drying cabinet, laboratory glassware, etc.

7. Practice methods / способы проведения ПРАКТИКИ

«Pedagogical practice» can be carried out both in the structural divisions of the RUDN University or in organizations in Moscow (stationary), and at bases located outside of Moscow (exit).

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

The timing of the internship corresponds to the period specified in the calendar academic schedule of the postgraduate program. The timing of the internship can be adjusted upon agreement with the Department of Educational Policy and the Department for the organization of internships and employment of students at RUDN University.

8. EDUCATIONAL-METHODICAL AND INFORMATIONAL SUPPORT OF EDUCATIONAL PRACTICE / УЧЕБНО-МЕТОДИЧЕСКОЕ И ИНФОРМАЦИОННОЕ ОБЕСПЕЧЕНИЕ ПРАКТИКИ

Main literature:

1. Banshchikova IA, Complex ANSYS: nonlinear strength analysis of structures [Electronic resource]: tutorial / Banshchikova IA. - Novosibirsk: Publishing house of NSTU, 2015 .-- 94 p. - ISBN 978-5-7782-2816-0
2. Moskalev NS, Metal structures [Electronic resource]: Textbook / NS. Moskalev, Ya.A. Pronosin. - M.: Publishing house ASV, 2014 .-- 344 p. - ISBN 978-5-93093-500-4 - Access mode: <http://www.studentlibrary.ru/book/ISBN9785930935004.html>
3. Ibragimov AM, Welding of building metal structures [Electronic resource]: Textbook / Ibragimov AM, Parlashkevich V.S. - M.: Publishing house ASV, 2015 .-- 176 p. - ISBN 978-5-93093-891

Additional literature:

1. Automated information systems in the economy / ed. M.V. Vasilyeva. - Moscow: Student Science, 2012. - Part 1. Collection of student works. - 1064 p. - (University science to help the student). - ISBN 978-5-00046-053-5; Access mode: <http://biblioclub.ru/index.php?page=book&id=225482>
2. Fundamentals of scientific research and patenting: teaching aid / comp. V.A. Valkov, V.A. GolovatyUC, V.I. Kochergin, S.G. ShchUCin. - Novosibirsk: Novosibirsk State Agrarian University, 2013 .-- 228 p. Access mode: <http://biblioclub.ru/index.php?page=book&id=230540>
3. Sidorov VN, The finite element method in the design of structures. Theory, algorithm, examples of calculations in the SIMULIA Abaqus software package [Electronic resource]: Textbook / VN Sidorov, VV Vershinin. - M.: Publishing house ASV, 2015 .-- 288 p. - ISBN 978-5-4323-0090-4
4. Radin VP, The finite element method in dynamic problems of resistance of materials [Electronic resource] / Radin VP, Samogin Yu.N., Chirkov VP. - M.: FIZMATLIT, 2013 .-- 316 p. - ISBN 978-5-9221-1485-1

Resources of the information and telecommunications network "Internet":

1. EBS of RUDN University and third-party EBS to which university students have access on the basis of concluded agreements:
 - Electronic library system RUDN - 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
 - 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.elsevierscience.ru/products/scopus/>

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. Safety regulations during the passage of the «Pedagogical practice» (initial briefing).
2. The general arrangement and principle of operation of technological production equipment used by students during their internship; flow charts and regulations, etc. (if necessary).
3. Guidelines for filling in a diary by students and preparing a practice report.

8. Evaluation materials and score-rating system for assessing the level of formation of competences on the results of practice / оценочные материалы и балльно-рейтинговая система оценивания уровня сформированности компетенций по итогам прохождения практики

Evaluation materials and a point-rating system* for evaluating students based on the results of passing

«Pedagogical practice» are presented in the Annex to this Practice Program (module).

* - OM and BRS are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

**Ass. Professor at the Department of
Civil engineering**

Markovich A.S.

Должность, БУП



Подпись

Фамилия И.О.

Должность, БУП

Подпись

Фамилия И.О.

Должность, БУП

Подпись

Фамилия И.О.

DIRECTOR AT THE DEPARTMENT:

Department of Civil engineering

Rynkovskaya M.I.

Наименование БУП



Подпись

Фамилия И.О.