

МИНОБРНАУКИ РОССИИ

**Федеральное государственное бюджетное образовательное
учреждение высшего образования "Пермский
государственный национальный исследовательский
университет"**

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Программа производственной практики

**PROFESSIONAL INTERNSHIP AIMED AT ACQUIRING PROFESSIONAL SKILLS
AND EXPERIENCE IN THE VOCATIONAL SPHERE**

Код УМК 97181

Утверждено
Протокол №9
от «12» мая 2020 г.

Пермь, 2020

1. Вид практики, способ и форма проведения практики

Вид практики **производственная**

Тип практики **профессиональная – практика, направленная на приобретение профессиональных умений и опыта профессиональной деятельности**

Способ проведения практики **стационарная, выездная**

Форма (формы) проведения практики **дискретная**

2. Место практики в структуре образовательной программы

Производственная практика « Professional internship aimed at acquiring professional skills and experience in the vocational sphere » входит в обязательную часть Блока « Б.2 » образовательной программы по направлениям подготовки (специальностям):

Направление: **05.03.06** Экология и природопользование
направленность Экологическая инженерия и новая энергетика

Цель практики :

Consolidation of students knowledge gained in the course of training; formation of their skills and development of skills for work in the field of nature management, nature protection and ecology, in accordance with the requirements of the SUOS for the level of training of students of the profile "Environmental Engineering and new Energy".

Задачи практики :

1. Introduction to the enterprise (organization) as an object of production activity.
2. Consolidation, deepening and development of knowledge gained in the course of theoretical training in the previous period of training.
3. Acquisition of experience in research and practical work in organizations.
4. Acquisition of skills and development of skills for working in the conditions of the enterprise (organization).
5. Collection and synthesis of the necessary data for course projects and materials for the implementation of the student's research work and preparation of the final qualification work at the final stage of training.

3. Перечень планируемых результатов обучения

В результате прохождения практики **Professional internship aimed at acquiring professional skills and experience in the vocational sphere** у обучающегося должны быть сформированы следующие компетенции:

05.03.06 Экология и природопользование (направленность : Экологическая инженерия и новая энергетика)

ПК.1 владеть методами лабораторных экологических исследований

4. Содержание и объем практики, формы отчетности

The practical training is carried out in accordance with the requirements of the independently established educational standard of higher education at PSNIU and the undergraduate curriculum 05.03.06 "Ecology and Nature Management", profile "Environmental Engineering and New Energy", the Regulation on the practice of students at PSNIU.

Industrial practice occupies a key place in the structure of the educational program. In production practice, students are given the opportunity to practically use the knowledge already gained during lecture and practical classes in classrooms. In addition, the practice provides for continued training in the field. Students in industrial practice learn to perform the functions of environmental engineer in design, survey, research, production, marketing, consulting, economic, legal, expert departments, firms, companies.

Направления подготовки	05.03.06 Экология и природопользование (направленность: Экологическая инженерия и новая энергетика)
форма обучения	очная
№№ триместров, выделенных для прохождения практики	9,10
Объем практики (з.е.)	9
Объем практики (ак.час.)	324
Форма отчетности	Экзамен (10 триместр)

Примерный график прохождения практики

Количество часов	Содержание работ	Место проведения
Production practice		
324	<p>Production practice is designed to consolidate and expand the theoretical knowledge gained; to get acquainted with the features of the future specialty; to get a general idea of a specific organization and organizational structure of management; to get acquainted with the technology of production processes and the equipment used; to acquire professional competencies by students in the workplace as part of production units under the guidance of highly qualified specialists in coordination with the head of practice from the department.</p> <p>The forms of practical training for persons with disabilities are determined taking into account the peculiarities of psychophysiological development, individual capabilities and the state of health of students.</p> <p>There may be changes in the time frame for passing the current interim certification, namely, an increase in the time for preparing and submitting the practice report is provided.</p>	<p>The place of industrial practice may be a production enterprise, a cultural and service institution, environmental firms, protected areas, research organizations, departments and departments of government bodies at the local, regional and federal levels of government, etc., engaged in research, design, management or production activities related to knowledge and skills in the following areas::</p> <ul style="list-style-type: none"> - environmental design; - environmental management and audit; - nature protection and

Количество часов	Содержание работ	Место проведения
		<p>rational use of natural resources;</p> <ul style="list-style-type: none"> - control of the impact on environmental components; - environmental monitoring and production control; - design and operation of protected areas; - assessment of the state of protected areas; - other areas related to the direction " Ecology and nature management" <p>PSU Faculty of Geography Department of Biogeocenology and Nature Protection.</p> <p>For students with disabilities and disabilities, alternative places of practice are provided, individually provided, taking into account the recommendations of the psychological, medical and pedagogical commission or the ITU.</p>
1. The preparatory stage of the practice		
10	<ol style="list-style-type: none"> 1. A student who has entered the practice gets acquainted with the structure and activities of the selected institution (enterprise), enters the designated department. 2. Together with the head of the practice, he specifies the forms, types and deadlines for completing the work in accordance with the individual plan (task) of the course. 3. It is determined by the sources of environmental information that it needs to find to perform the tasks of the practice, the methods of its processing and analysis. 	<p>The place of industrial practice may be a production enterprise, a cultural and service institution, environmental firms, protected areas, research organizations, departments and departments of government bodies at the local, regional and federal levels of government, etc., engaged in research, design, management or production activities related to knowledge and skills in the following areas::</p> <ul style="list-style-type: none"> - environmental design; - environmental management

Количество часов	Содержание работ	Место проведения
		and audit; - nature protection and rational use of natural resources; - control of the impact on environmental components; - environmental monitoring and production control; - design and operation of protected areas; - assessment of the state of protected areas; - other areas related to the direction " Ecology and nature management" PSU Faculty of Geography Department of Biogeocenology and Nature Protection.
2. The stage of completing the tasks of the individual practice program		
278	As part of the main stage of the practice, the student performs the tasks proposed to him by the supervisor and approved in the individual plan (task) of the practice. Tasks include tasks for collecting, analyzing primary environmental information, systematizing it, and performing basic analytical work, i.e. tasks necessary for high-quality performance of the first and partially second chapters of the final qualification work. Also, the task of the practice at its first stage is associated with the consolidation and use of theoretical knowledge in the field of ecology and nature management, processes and phenomena related to this area, the use of general scientific and special scientific methods to solve certain scientific and applied problems that are important for the work of the organization - the place of practice.	The place of industrial practice may be a production enterprise, a cultural and service institution, environmental firms, protected areas, research organizations, departments and departments of government bodies at the local, regional and federal levels of government, etc., engaged in research, design, management or production activities related to knowledge and skills in the following areas:: - environmental design; - environmental management and audit; - nature protection and rational use of natural resources; - control of the impact on environmental components; - environmental monitoring

Количество часов	Содержание работ	Место проведения
		and production control; - design and operation of protected areas; - assessment of the state of protected areas; - other areas related to the direction of "Ecology and nature management". PSU Faculty of Geography Department of Biogeocenology and Nature Protection.
3. Final stage (execution of the practice report)		
32	The student draws up a report on the production practice in accordance with the rules and requirements approved by the department. There is a systematization and processing of the received materials. The main conclusions are made and the results of the study are presented. Subject to successful completion of the internship, with the help of the supervisor, students determine further forms of research work, specify the direction of scientific research, and make a decision to clarify the topic of the final qualifying work.	It is carried out at the Department of Biogeocenology and Nature Protection of the Geographical Faculty of PSU.
4. Defending the Practice report		
4	The defense is held at a meeting of the commission, consisting of 2-3 members of the Department of Biogeocenology and Nature Protection, in the terms established by the schedule of the educational process and by appointment of the meeting of the departments. During the defense, the student must submit a report and a presentation based on its main provisions, as well as answer all questions that arise from the commission and the audience. The main task of the stage is to assess the formation of a part of the competencies provided for by this stage of production practice.	It is carried out at the Department of Biogeocenology and Nature Protection of the Geographical Faculty of PSU.

5. Перечень учебной литературы, необходимой для проведения практики

Основная

1. Robert C. Brears. Natural Resource Management and the Circular Economy. Palgrave Macmillan, Cham, 2018. ISBN 978-3-319-71888-0 [Электронный ресурс] <https://link.springer.com/book/10.1007/978-3-319-71888-0>
2. Tanay Sidki Uyar. Towards 100% Renewable Energy. Techniques, Costs and Regional Case-Studies. Springer International Publishing Switzerland 2017. Online ISBN 978-3-319-45659-1. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-319-45659-1> <https://link.springer.com/book/10.1007/978-3-319-45659-1>

Дополнительная

1. Davide Geneletti, Chiara Cortinovis, Linda Zardo, Blal Adem Esmail: "Planning for Ecosystem Services in Cities", 2020, ISBN 978-3-030-20024-4. [Электронный ресурс]. <https://link.springer.com/book/10.1007/978-3-030-20024-4>
2. Yoram Krozer. Theory and Practices on Innovating for Sustainable Development. Springer International Publishing Switzerland 2016. Online ISBN 978-3-319-18636-8. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-319-18636-8> <https://link.springer.com/book/10.1007/978-3-319-18636-8>
3. Zhaoqing Yang, Andrea Copping. Marine Renewable Energy. Resource Characterization and Physical Effects. Springer International Publishing AG 2017. Online ISBN 978-3-319-53536-4. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-319-53536-4> <https://link.springer.com/book/10.1007/978-3-319-53536-4>
4. David Elliott, Terence Cook. Renewable Energy. From Europe to Africa. The Editor(s) (if applicable) and The Author(s) 2018. Online ISBN 978-3-319-74787-3. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-319-74787-3> <https://link.springer.com/book/10.1007/978-3-319-74787-3>

6. Перечень ресурсов сети «Интернет», требуемых для проведения практики

При прохождении практики требуется использование следующих ресурсов сети «Интернет» :

<https://priroda.permkrai.ru> Ministry of Natural Resources, Forestry and Ecology of the Perm Region
www.forestforum.ru Federal Forestry Agency

7. Перечень информационных технологий, используемых при проведении практики

Образовательный процесс по практике **Professional internship aimed at acquiring professional skills and experience in the vocational sphere** предполагает использование следующего программного обеспечения и информационных справочных систем:

Presentation materials (slides on the topics of lectures and practical classes); on-line access to the Electronic Library System (ELS); access to the electronic information and educational environment of the university Internet services and electronic resources (search engines, e-mail, professional thematic chats and forums, audio and video conference systems, online encyclopedias, etc.)

Office application package "LibreOffice". Programs, demonstrations of video materials (player).

Software for the laptop: OS "Alt Education" (Contract No. DS 003-2020).

The discipline does not provide for the use of special software.

При освоении материала и выполнения заданий по дисциплине рекомендуется использование материалов, размещенных в Личных кабинетах обучающихся ЕТИС ПГНИУ (student.psu.ru).

При организации дистанционной работы и проведении занятий в режиме онлайн могут использоваться:

система видеоконференцсвязи на основе платформы BigBlueButton (<https://bigbluebutton.org/>).

система LMS Moodle (<http://e-learn.psu.ru/>), которая поддерживает возможность использования текстовых материалов и презентаций, аудио- и видеоконтент, а так же тесты, проверяемые задания, задания для совместной работы.

система тестирования Indigo (<https://indigotech.ru/>).

8. Описание материально-технической базы, необходимой для проведения практики

Audience for group and individual consultations, for intermediate certification-an audience equipped with presentation equipment (projector, screen, laptop) with appropriate software; chalk or marker board.

Independent work: An audience for independent work, equipped with computer equipment with the ability to connect to the Internet, provided with access to the electronic information and educational environment of the university.

Premises of the Scientific Library of PSU.

For field practices - equipment provided by the organization.

Помещения научной библиотеки ПГНИУ для обеспечения самостоятельной работы обучающихся:

1. Научно-библиографический отдел, корп.1, ауд. 142. Оборудован 3 персональными компьютера с доступом к локальной и глобальной компьютерным сетям.

2. Читальный зал гуманитарной литературы, корп. 2, ауд. 418. Оборудован 7 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

3. Читальный зал естественной литературы, корп.6, ауд. 107а. Оборудован 5 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

4. Отдел иностранной литературы, корп.2 ауд. 207. Оборудован 1 персональным компьютером с доступом к локальной и глобальной компьютерным сетям.

5. Библиотека юридического факультета, корп.9, ауд. 4. Оборудована 11 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

6. Читальный зал географического факультета, корп.8, ауд. 419. Оборудован 6 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

Все компьютеры, установленные в помещениях научной библиотеки, оснащены следующим программным обеспечением:

Операционная система ALT Linux;

Офисный пакет Libreoffice.

Справочно-правовая система «КонсультантПлюс»

9. Методические указания для обучающихся по освоению дисциплины

The organization of the practice includes: the presence of an individual plan (task) of the practice, which specifies the purpose and objectives of the practice, its main activities, the need for a certain result. The practice is carried out on the basis of a signed contract between the PSU and the organization-the place of practice.

Organizations (places of practice) have environmental specialization, for example, the Ministry of Natural Resources, Forestry and Ecology of the Perm Region, Uralkali, "Kama Basin Water Management", etc. While in practice at the place of practice (organization), the intern needs to become more familiar with the principles, forms, types and methods of work in the field of ecology and nature management, as well as try to use the environmental knowledge gained during the training to analyze and diagnose the organization's activities.

The initiative research or project should correspond to the subject of the organization's activity-the place of practice, be part of its scientific or practical programs, and/or be important for improving its activities. The author's development should also be closely related to the focus of the bachelor's program and, ultimately, contribute to a deeper study of a particular problem of regional development. The student should be able to show their research and design skills in formulating directions for correcting the current situation in one of the aspects of the organization's activities.

The student prepares a report on the production practice in accordance with the rules and requirements approved by the department. There is a systematization and processing of the received materials. The main conclusions are made and the results of the study are presented.

During the defense, the student must disclose the purpose and objectives of the practice, the results obtained, and their possible application in the final qualifying work. In addition, the student must be able to justify, prove and explain the results of their activities during the practice. The performance should not exceed 7 minutes.

Фонды оценочных средств для проведения промежуточной аттестации

Планируемые результаты обучения по дисциплине для формирования компетенции. Индикаторы и критерии их оценивания

ПК.1

владеть методами лабораторных экологических исследований

Компетенция	Планируемые результаты обучения	Критерии оценивания результатов обучения
<p>ПК.1 владеть методами лабораторных экологических исследований</p>	<p>KNOW the basic methods of laboratory environmental research. BE ABLE to process data obtained in the course of laboratory environmental studies. POSSESS the entire methodology of laboratory environmental research.</p>	<p style="text-align: center;">Неудовлетворительно</p> <p>Does not know the basic methods of laboratory environmental research. He/she is not able to process the data obtained in the course of laboratory environmental studies. Does not know the methodology of laboratory environmental studies.</p> <p style="text-align: center;">Удовлетворительно</p> <p>Knows (with significant gaps) the methods of laboratory environmental studies. There are initial skills in processing data obtained in the course of laboratory environmental studies. He/she does not know all the methodology of laboratory environmental studies.</p> <p style="text-align: center;">Хорошо</p> <p>Knows (with minor errors) the methods of laboratory environmental studies. He/she is able to process data obtained in the course of laboratory environmental studies without significant errors. He/she knows almost all the methodology of laboratory environmental research.</p> <p style="text-align: center;">Отлично</p> <p>Knows the basic methods of laboratory environmental research. He/she can process data obtained in the course of laboratory environmental studies. He/she knows the entire methodology of laboratory environmental research.</p>

Оценочные средства

Вид мероприятия промежуточной аттестации : Экзамен

Способ проведения мероприятия промежуточной аттестации : Защищаемое контрольное мероприятие

Продолжительность проведения мероприятия промежуточной аттестации :
время отводимое на доклад 4

Показатели оценивания

<p>Does not demonstrate professional knowledge and skills in the field of ecology and nature management; does not know how to use general scientific, special scientific research methods to collect primary information necessary for solving professional research or project tasks; does not have the skills of collective work, presenting their own opinion on a particular problem in the professional field; has insurmountable difficulties in implementing practice tasks, writing reports and during its defense.</p>	<p>Неудовлетворительно</p>
<p>Demonstrates individual formed professional knowledge and skills in the field of ecology and nature management; is able to use general scientific, special scientific research methods to collect primary information necessary for solving professional research or project tasks; in the course of this activity, experiences objective difficulties, does not always use special scientific terminology, characterizes the essence of a particular theoretical construction; he has the skills of collective work, but can not present his own opinion on a particular problem in the field of ecology and nature management; he has some problems in the course of performing practical tasks, writing a report and defending it.</p>	<p>Удовлетворительно</p>
<p>Demonstrates sufficient professional knowledge and skills in the field of ecology and nature management; is able to use general scientific, special scientific research methods to collect primary information necessary for solving professional research or project tasks; at the same time makes individual mistakes that can be corrected independently; has the skills of collective work, presenting their own opinion on a particular problem in the field of ecology and nature management in the course of performing practical tasks, preparing a report and defending it; at the same time, it does not do this quite confidently, and allows certain inaccuracies in the design of the practice report, which nevertheless do not affect the final result of the work.</p>	<p>Хорошо</p>
<p>Demonstrates fully formed professional knowledge and skills in the field of ecology and nature management; is able to use various general scientific, special scientific research methods to collect primary information necessary for solving professional research or project tasks; has all the necessary skills of collective work, presenting their own opinion on a particular problem in the field of ecology and nature management in the course of performing practical tasks, preparing a report and defending it.</p>	<p>Отлично</p>