

*Federal State Autonomous Educational Institution  
higher education  
"Peoples' Friendship University of Russia"  
Academy of Engineering*

## **PRACTICE WORKING PROGRAM**

**Type of practice:** Educational

**Type (name) of practice:** Research work (primary skills in research work)

**Training area:** 21.04.01 Oil and gas engineering

**Program (focus (profile)):** Oil and gas production and transportation technologies

## 1. The purpose and objectives of the practice

The objectives of the research work:

- prepare the undergraduate both for independent research, the main result of which is the writing and successful defense of a master's thesis, and for conducting research as part of a creative team;
- the formation of masters of general cultural, personal and professional competencies aimed at acquiring the skills of planning and organizing scientific research and the ability to perform research using various equipment and computer technologies.

**The main objectives** of the research work are:

- process the results, analyze and present them in the form of completed research and development (report on research, abstracts, scientific articles, term papers, master's thesis);
- fill out the results of the work done in accordance with the requirements;
- be responsible for the quality of work performed;
- training among the most capable and successful students of the reserve of scientific, pedagogical and scientific personnel of the University;
- to form other skills necessary for a student undergraduate in this direction, studying for a specific master's program

## 2. The practice in the Educational Program of Higher Education's Structure

Research work relates to the base component of mandatory courses of Block 2 of the curriculum. It is the basis for the study of subsequent disciplines or practices of the curriculum, a list of which is presented in table 1.

*Table 1 - a List of previous and subsequent disciplines / practices*

No. p / p	Previous disciplines / practices	Subsequent Disciplines
1		Technological practice
2		Undergraduate practice
3		State final certification

## 3. Methods of Practice

The methods of conducting on the practice to develop the primary professional skills are as follows:

- stationary.

## 4. Volume of practice and types of educational work

*Table 2 - the scope of practice and types of educational work*

Type of study		Total, ac . hours	Module		
			1	2	3
The student's contact work with the teacher, including monitoring		54	18	18	18
Other forms of academic work, including keeping a practice diary and preparing a report for students		378	162	126	90
Type of certification test			Score with grade	Score with grade	Score with grade
Total labor input	academic hours	432	180	144	108
	credits	12	5	4	3
Duration of practice	weeks	9			

## 5. Place of practice

The bases for the passage of students of research work are:

- laboratories of the department of subsoil use and oil and gas engineering.

Students with disabilities and / or belonging to the category of “disabled person” undergo internships in an accessible form for them in the laboratories of the university, as well as in specialized organizations with which relevant agreements are concluded and which have the opportunity (equipment, special facilities and infrastructure) to work with these categories of citizens.

## 6. The list of the planned results of the internship, correlated with the planned results of the development of the educational program

Research work is aimed at the formation of the following competencies among students:

- ability to solve production and / or research problems, based on fundamental knowledge in the oil and gas field (OPC-1);
- ability to develop scientific, technical, design and service documentation, draw up scientific and technical reports, reviews, publications, reviews (OPC-3);
- ability to evaluate the results of scientific and technological developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields (OPC-5);
- ability to participate in teaching, using special scientific and professional knowledge (OPC-6);
- ability to plan and conduct analytical, simulation and experimental studies, critically evaluate data and draw conclusions (PC-1);

- ability to analyze and summarize data on the operation of technological equipment, to monitor, technical support and control of technological processes in the oil and gas industry (PC-2).

The result of practical training is the knowledge, skills, and experience of professional activity that characterize the stages of formation of competencies and ensure the achievement of the planned results of the development of the educational program, presented in table 3.

*Table 3 - the results of training in the discipline, correlated with the planned results of mastering the educational program of higher education*

<b>Competence</b>	<b>Knowledge</b>	<b>Abilities</b>	<b>Skills</b>
one	2	3	4
ability to solve production and / or research problems, based on fundamental knowledge in the oil and gas field (OPC-1)	- fundamental knowledge of professional activity for solving specific problems of oil and gas production .	- to analyze the reasons for the decline in the quality of technological processes and offers effective ways to improve the quality of work production when performing various technological operations.	- the skills of using modern tools and methods for planning and monitoring projects related to complications arising from work.
ability to develop scientific, technical, design and service documentation, draw up scientific and technical reports, reviews, publications, reviews (OPC-3)	- types of corporate documentation and can work with it .	- find the best options for the development of various documentation in accordance with applicable law.	- analyzes information and makes reviews, reports; - analytical review skills in preparing abstracts, publications and at least 50 sources in preparing a master's thesis.
ability to evaluate the results of scientific and technological developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields (OPC-5)	- cases of the need to adjust or eliminate traditional approaches in the design of technological processes .	- interpret the results of laboratory and technological studies in relation to specific conditions.	- skills to improve individual components of traditional equipment, including laboratory.
ability to participate in teaching, using special scientific and	- the basics of pedagogy and psychology,	- communicate with the audience, interest the audience.	- business communication skills,

professional knowledge (OPC-6)	- the basics of management		- the fundamentals of management in organizing the work of the team in carrying out a specific research, design and engineering task .
ability to plan and conduct analytical, simulation and experimental studies, critically evaluate data and draw conclusions (PC-1)	- has an idea of the currently most advanced field development technologies .	- carries out the choice of methods and means of solving the problem	- owns the skills of analysis and systematization of information on the topic of research
ability to analyze and summarize data on the operation of technological equipment, to monitor, technical support and control of technological processes in the oil and gas industry (PC-2)	- advantages and disadvantages of the used technological equipment in the Russian Federation and abroad.	- determines on a professional level the features of the work of various types of technological units used in the oil and gas industry	- has the skills to interpret the data on the operation of equipment, technical devices in the oil and gas industry

### 7. The structure and content of the practice

No. p / p	Practice steps	Types of work carried out by students	Educational work in the forms ak.ch .		Total, ac .
			Contact work	Other forms of academic work	
1	Organizational preparatory	Receiving an individual task from the head	12	-	12
2		The choice and approval of the research topic, the study of the degree of scientific development of the problem	12	-	12
3	Main	Research phase. Observation and information gathering activities	-	120	120
4		The stage of processing and analysis of the information received. Processing and systematization of factual and literary material	-	138	138

5	Reporting	Preparation of a report on research	-	120	120
6		Intermediate certification (preparation for defense and report protection)	30	-	10
<b>TOTAL:</b>			<b>54</b>	<b>378</b>	<b>432</b>

For students from the number of persons with disabilities and / or pertinent 's camping in the category of "disabled person" , if necessary , the head of practice develops individual tasks, plan and procedure of practice, taking into account the characteristics of their psychophysical development, individual empowerment and health status, educational program adapted for these students (if available) and in accordance with individual rehabilitation programs for the disabled.

### **8. Educational, research and development technologies used in practice**

In the process of passing the research work, the following educational technologies are used:

- the student's contact work with the teacher, which consists in receiving an individual assignment, undergoing safety training, obtaining advice on practical training, filling out current and reporting documentation, and protecting the practice report;
- other forms of study (educational activities), to which the main activity of the student for performing partition practice Correspondingly Vie with individual tasks, the recommended methods and sources of literature aimed at the formation of certain skills or professional experience in the program of practices and as well as filling out current and reporting documentation, and preparing to defend a practice report.

In the process of internship, the following research and development technologies are used:

- mastering by the student methods of analyzing information and interpreting the results of research activities;
- performance of written analytical and calculation tasks in the framework of practice using recommended information sources;
- to use different computer software products graphic, analytical and / or industrial purpose (depending on the location and task of practice specificity);
- use by students of various electronic library and legal reference systems, etc.

### **9. Educational-methodical and informational support of educational practice**

*About the main literature:*

1. Organization of the research work of undergraduates: workshop / Ministry of Education and Science of the Russian Federation, Federal North-Western Autonomous

Educational Institution of Higher Professional Education "North Caucasus Federal University"; autostat O.V. Soloviev, N.M. Borozinets . - Stavropol: SKFU, 2016 .-- 144 p.  
<http://biblioclub.ru/index.php?page=book&id=459348>

2. Demchenko, Z.A. Methodology of scientific research activity: educational-methodical manual / Z.A. Demchenko, V.D. Lebedev, D.G. Myasishchev; Ministry of Education and Science of the Russian Federation, Federal State Autonomous Educational Institution of Higher Professional Education Northern (Arctic) Federal University named after M.V. Lomonosov. - Arkhangelsk: NArFU, 2015 .-- 84 p.  
<http://biblioclub.ru/index.php?page=book&id=436330>

*Additional literature:*

1. Astanina S. Yu. Student research work (current requirements, problems and their solutions): Monograph / Astanina S.Yu., Shestak N.V., Chmykhova E.V .; Astanina S.Yu. - Moscow: Modern Humanitarian Academy, 2012. - 156 p.  
<http://www.iprbookshop.ru/16934>

2. Shestak N.V. Scientific research activity in a university (Basic concepts, stages, requirements) / Shestak N.V., Chmykhova E.V .; Shestak N.V. - Moscow: Modern Humanitarian Academy, 2007. - 179 p.  
<http://www.iprbookshop.ru/16935>

*Periodicals:*

1. The journal " Oil and Gas Vertical " <http://ngv.ru>
2. The magazine " Gas Industry " <http://neftegas.info/gasindustry/>
3. The journal " Neftegaz.ru " <http://www.neftegaz.ru>

*Resources of the information and telecommunication network "Internet":*

1. ELS of RUDN University and third-party ELS, to which university students have access on the basis of agreements:

- RUDN Electronic Library System
- EBS RUDN University <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Online Library" <http://www.biblioclub.ru>
- EBU Yurait <http://www.biblio-online.ru>
- ELS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- ELS "Doe" <http://e.lanbook.com/>

2. Databases and search engines:

- electronic fund of legal and regulatory technical documentation

<http://docs.cntd.ru/>

- Yandex search system <https://www.yandex.ru/>
- Google search engine <https://www.google.com/>
- abstract SCOPUS database <http://www.elsevierscience.ru/products/scopus/>

*Programme software:*

- License for “ARMARIS” software for TESP ESP.
- PISCES II Emergency Training Simulator software (Version 2.93) WF 60.2013 Transas Ltd
- Specialized software " TransasShelf 6000 DrillingSimulator "

*Methodological materials for internship, conducting current and preparation of reporting documentation for students (also posted in the TUIS RUDN University in the appropriate section of the discipline):*

1. Methodological instructions for internship, conducting current and preparing reporting documentation for students in the direction 21.04.01 Oil and Gas Engineering - Oil and gas production and transportation technologies (Appendix 2)

### 10. Logistical support of educational practice

Podolskoe shosse, 8, building 5 Classroom: №360	Set of specialized furniture; chalk board; hardware: projection screen; SANYO plc xt20 multimedia projector; system unit DEPO Neos 220
Podolskoe shosse, 8, building 5 Mining machinery laboratory № 358	Computer with pre-installed licensed software "ARMARIS" Intel Soge15 processor; "Wellhead fittings" - mock-up stand; 3D LED TV on a rack with a screen diagonal of 32 inches; The breadboard model - the Electon-09 1 controller from the Electon 05-250 SU in a compact design
Podolskoe shosse, 8, building 5 Laboratory of rational subsoil use № 337	Set of specialized furniture; hardware: Acer V193L monitor, RAMEC STORM W system unit, keyboard, computer mouse-4; Plotter Hewlett Packard C7770B; Creative WebCam Live Motion 1 camera, NIKON LV100D microscope, AdventurerProRV214 electronic laboratory balance, AdventurerProRV313 electronic laboratory balance, Scimitar1000FT-IR IR Fourier spectrometer, PRIZMA-ECO X-ray fluorescence energy dispersive analyzer, K201-512 high-pressure reactor
Podolskoe shosse, 8, building 5 Mining machinery laboratory № 362	Set of specialized furniture; Drilling simulator “Transas SHELF 6000 Drill”; Additional place for the trainee to simulator drilling simulator “Transas SHELF 6000 Drill”
Podolskoe shosse, 8, building 5 Laboratory of hydrodynamic processes of oil and gas production № 341	Ejector; Work bench, instrumentation and shut-off and control valves; Tank; Stand-layout of the pump-ejector system, left view; Laser diode; Column with liquid; Air compressor; Gas supply system to the column; Gas meter; Pressure gauge; Photodiode Digital oscilloscope

### 11. Certification forms of practice



In the process of internship, the teacher monitors the progress of the student's assignment to practice. Based on the results of the practice, an intermediate certification is provided in the form of a set-off with an assessment (based on the results of the protection of the report on the practice).

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

Materials for assessing the level of mastering the educational material of the practice (evaluation materials), including a list of competencies, specifying stages of their formation, description of the indicators, and criteria of assessment competencies at different stages of their formation, the description of the scales of assessment, typical assignments or other materials necessary for the evaluation of knowledge, skills, and (or) operational experience that characterize the stages' formation of competencies in the process of mastering the educational program, training materials, defining the procedure of assessment of the knowledge, skills, proficiency and (or) operational experience that characterize the stages of competence formation have been developed in full and are available to students, on the discipline page, on the website of the RUDN University (TUIS RUDN).

The program is designed in accordance with the requirements of the RUDN University OS.

**Developer:**

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