

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

PRACTICE WORKING PROGRAM

Type of practice: Production

Type (name) of practice: Pre-graduation Practice

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 Pre-graduation practice is aimed at performing research necessary for the development of graduate qualification work; the formation and development of practical skills and competencies of the master, the acquisition of experience of independent professional activity; consolidation and deepening of the gained theoretical knowledge in the studied disciplines; the formation of master's skills in applying the knowledge gained in training in independent professional activities.

The main objectives of the practice:

- collecting materials for writing a master's thesis;
- the study of specific methods and techniques for the activities of production and transport enterprises;
- the study of modern technologies for solving various problems of production and transport of hydrocarbons in real conditions;
- preparation of analytical materials, informational reviews on the problems of the development of modern technologies for the production and transport of hydrocarbons;
- development of the ability to conduct independent research in accordance with the developed program;
- collection of information necessary for the preparation of the practical part of the master's thesis, the acquisition of skills for their processing and analysis;
- obtaining and summarizing data confirming the conclusions and main provisions of the master's thesis, testing its most important results and proposals.

2. Place of practice in the structure of the educational program of higher education

The Pre-graduation practice is related to the variable component of mandatory courses of Block 2 of the curriculum. Its passage is based on the material of previous disciplines and / or practices, and it is also the basis for the study of subsequent disciplines and / or practices of the study program, a list of which is presented in table 1.

Table 1 - List of previous and subsequent disciplines / practices

№	Previous disciplines / practices	Subsequent Disciplines
1	Current development of production of unconventional hydrocarbon in the world	State final certification
2	Methods of increasing the resource ESP	
3	Software complex for assessing the reliability of submersible equipment from operational data	

3. Methods of Practice

The methods for conducting undergraduate practice are as follows:

- stationary;
- on field.

4. Volume of practice and types of educational work

Table 1 - Volume of practice and types of educational work

Type of study	Total, ac. hours	Module	
The student's contact work with the teacher, including monitoring	36	36	
Other forms of academic work, including keeping a practice diary and preparing a report for students	180	180	
Type of certification test		Passed the assessment	
Total labor input	academic hours	216	216
	credits	6	6
Duration of practice	weeks	4	4

5. Place of practice

The place of the practice is provided to the student by the supervisor of the practice on the basis of concluded relevant agreements with basic organizations.

The bases for the undergraduate practice are:

- laboratories of the department of geology, mining and oil and gas;
- research, design and development institutions and firms.

A student can himself take the initiative on the place of practical training. The study program of the professional activity of the organization offered by students for practical training should correspond to the profile of the educational program and the types of professional activity for which the graduate of the program is preparing. The place of internship is necessarily agreed with the head of the department with the subsequent (in case of a positive decision) conclusion of an appropriate agreement with the proposed student organization. Dates and specifically the quantitative, nominal composition of students is negotiated additionally, no later than a month before the start of practice.

Students with disabilities and / or belonging to the category "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) 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

The pre-graduation practice is aimed at the formation of the following competencies among students:

- ability to solve production and / or research problems, on the basis of fundamental knowledge in the oil and gas field (OPC -1);
- ability to carry out the design of technological processes, facilities in the oil and gas industry using computer technology (OPC -2);
- ability to develop scientific, technical, design and service documentation, draw up scientific and technical reports, reviews, publications, reviews (OPC -3);
- ability to find and process the information required for decision-making in scientific research and in practical technical activities (OPC -4);

- 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 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 management of technological processes in the oil and gas industry (PC-2);

- ability to ensure safe and efficient operation and operation of technological equipment of the oil and gas industry (PC-3).

The result of the internship is the knowledge, skills, and experience of professional activity that characterize the stages of the 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

Competency	Knowledge	Abilities	Skills
1	2	3	4
<i>ability to solve production and / or research problems, on the basis of fundamental knowledge in the oil and gas field (OPC -1);</i>	<i>fundamental knowledge of professional activities for solving specific problems of oil and gas production;</i>	<i>analyze the reasons for the decline in the quality of technological processes and offers effective ways to improve the quality of work when performing various technological operations;</i>	<i>the skills of physical and software modeling of individual fragments of the process of choosing the best option for specific conditions; skills in using modern tools and methods for planning and monitoring projects related to complications arising from the performance of work;</i>
<i>ability to carry out the design of technological processes, facilities in the oil and gas industry using computer technology (OPC -2);</i>	<i>an algorithm for organizing work in the design process for oil and gas industry facilities;</i>	<i>to formulate the goals of the work and offers ways to achieve them; choose the appropriate software products or their parts to solve specific professional problems;</i>	<i>skills in collecting baseline data for the preparation of a technical project for the design of a technological process, an object; skills in computer-aided design of technological processes;</i>
<i>ability to develop scientific, technical, design and service documentation, draw up scientific and technical reports, reviews,</i>	<i>methodological and regulatory materials used in the design and preparation of scientific and</i>	<i>develop scientific and technical, design, service documentation, draw up scientific and technical reports, reviews,</i>	<i>skills in the development of normative and methodological materials and their inclusion in the production process;</i>

<i>publications, reviews (OPC-3);</i>	<i>technical documentation;</i>	<i>publications based on the results of research;</i>	
<i>ability to find and process the information required for decision-making in scientific research and in practical technical activities (OPC -4);</i>	<i>the internal logic of scientific knowledge; theory of engineering experiment;</i>	<i>independently seek, analyze and select the necessary information, organize, transform, save and transmit it; analyzes the complex of modern problems of man, science and technology, society and culture; substantiate their worldview and social position and apply the acquired knowledge in areas not related to professional activities; determine the main directions of development of innovative technologies in the oil and gas industry; assess innovative risks; to process the results of scientific research, practical technical activities, using available equipment, devices and materials;</i>	<i>skills to develop innovative approaches in specific technologies using AWP;</i>
<i>ability to evaluate the results of scientific and technological developments, scientific</i>	<i>cases of the need to adjust or eliminate traditional approaches in the</i>	<i>to predict the occurrence of risks when introducing new</i>	<i>skills to improve individual components of traditional equipment, including laboratory (on their own</i>

<p><i>research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields (OPC -5);</i></p>	<p><i>design of technological processes;</i></p>	<p><i>technologies, equipment, systems; interpret the results of laboratory and technological studies in relation to specific conditions; to determine at a professional level the features of the work of various types of equipment and the identification of deficiencies in its work;</i></p>	<p><i>initiative or on the instructions of the teacher);</i></p>
<p><i>ability to plan and conduct analytical, simulation and experimental studies, critically evaluate data and draw conclusions (PC -1).</i></p>	<p><i>modern developments in the field of analytical, simulation, experimental research, computerized systems (including mathematical modeling programs, digital information processing, three-dimensional visualization of the results).</i></p>	<p><i>perform analytical research; perform simulation studies; perform experimental research; correctly interpret the results.</i></p>	<p><i>introduction of modern developments in the field of analytical, simulation, experimental research, computerized systems in various directions of pipeline transport and evaluate the potential implementation effectiveness.</i></p>
<p><i>ability to analyze and summarize data on the operation of</i></p>	<p><i>analyzes and determines the advantages and</i></p>	<p><i>determines on a professional level the features of the</i></p>	<p><i>has the skills to interpret the data on the operation of</i></p>

<i>technological equipment, monitor, technical support and process control in the oil and gas industry (PC-2);</i>	<i>disadvantages of the used technological equipment in the Russian Federation and abroad;</i>	<i>work of various types of technological units used in the oil and gas industry;</i>	<i>equipment, technical devices in the oil and gas industry;</i>
<i>ability to provide safe and efficient operation and operation of technological equipment of the oil and gas industry (PC-3).</i>	<i>knows the rules for the operation of technological equipment, structures, objects, machines, mechanisms of oil and gas production.</i>	<i>complies with the requirements of normative documentation for the operation and maintenance of technological equipment, structures, objects, machines, mechanisms of oil and gas production.</i>	<i>skills of efficient operation of technological equipment, structures, objects, machines, mechanisms of oil and gas production.</i>

7. The structure and content of the practice

№	Practice steps	Types of work carried out by students	Academic work on forms, ak. hours		Total, ac. hours
			Contact work	Contact work	
1	Organizational preparatory	Receiving an individual task from the head	2	-	2
2		Safety training at the workplace (in the laboratory and / or in the workplace)	2	-	2
3		Study of the practice of enterprises and organizations in accordance with the theme of the master's thesis	-	140	140
4		Ongoing monitoring of internship by the leader	22	-	22
5		Keeping a practice diary	-	20	20
6	Reporting	Preparation of a practice report	-	20	20
7		Intermediate certification (preparation for protection and report protection)	10	-	10
		TOTAL:	36	180	216

For students from among persons with disabilities and / or belonging to the category of «disabled person», if necessary, the head of practice develops individual tasks, a plan and an internship taking into account the characteristics of their psychophysical development, individual capabilities and state of health, educational program adapted for these students (if any) and in accordance with individual rehabilitation programs for the disabled.

8. Educational, research and development technologies used in practice

During the Pre-diploma practice, the following educational technologies are used:

- contact work of the student with the teacher, which consists in receiving an individual assignment, undergoing safety training, receiving advice on practical training, filling out current and reporting documentation, as well as protecting the practice report;

- other forms of educational work (educational activity), which include the main activity of the student in the implementation of sections of practice in accordance with an individual task, recommended methods and sources of literature, aimed at the formation of certain professional skills or professional experience provided for program of practice, as well as the completion of current and reporting documentation, and preparation for the defense of the report on the passage of practice.

During the internship, the following scientific studies and scientific production technology:

- mastering by students of methods of information analysis and interpretation of the results of research activities;

- performance of written analytical and calculation tasks in the framework of practice using recommended information sources;

- the use of various computer software products for graphic, analytical and / or industrial purposes (depending on the place of practical training and the specifics of the assignment);

- use by students of various electronic library and reference legal systems, etc.

9. Educational-methodical and informational support of educational practice

Main literature:

1. Gaibova, T.V. Undergraduate practice: textbook / T.V. Gaibova, V.V. Tugov, N.A. Shumilina; Ministry of Education and Science of the Russian Federation, Orenburg State University, Department of Management and Informatics in Technical Systems. - Orenburg: OSU, 2016.

<http://biblioclub.ru/index.php?page=book&id=467196>

2. Oil and gas business. Full course [Electronic resource]: Textbook / V.V. Tetel-min, V.A. Yazev. - 2nd ed. ; Electronic text data. - Dolgoprudny: Publishing House "Intellect", 2014. - 800 p.

<http://lib.rudn.ru/ProtectedView/Book/ViewBook/6246>

Additional literature:

1. Levochkina, N.A. Undergraduate practice: guidelines / N.A. Levochkina. - Moscow: Direct Media, 2013. -- 31 p.

<http://biblioclub.ru/index.php?page=book&id=134540>

2. Collection, transport and storage of oil in the fields: workshop / Ministry of Education and Science of the Russian Federation, Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University"; autostat L.M. Zinoviev, V.V. Verzhbitsky et al. - Stavropol: SKFU, 2017. -- 126 p.

<http://biblioclub.ru/index.php?page=book&id=483759>

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:

- The electronic library system of RUDN University - 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

- 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 engine <https://www.yandex.ru/>

- Google search engine <https://www.google.com/>

- SCOPUS abstract database <http://www.elsevierscience.ru/products/scopus/>

Software:

1. Specialized software for practicing and generating reporting documentation for students:

• 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 Drilling Simulator"

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

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:

Professor of the Department of Subsurface
Use and Oil and Gas Engineering

position



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