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**Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University**

Academy of Engineering

educational division (faculty/institute/academy) as higher education programme developer

Approved at the meeting of the Academic
Council of RUDN University

Opened by order of the Rector of
RUDN University No. 918

Protocol No. 12

September 24, 2018

(date, month, year)

November 14, 2018

(date, month, year)

PROFESSIONAL EDUCATION PROGRAMME OF HIGHER EDUCATION

Field of Studies/ Speciality:

21.04.01 Oil and Gas Engineering

field of studies / speciality code and title

Profile/Specialisation:

Oil and Gas Engineering

higher education programme title

The Educational Programme is developed in compliance with:

Educational Standard of RUDN University, approved by Order of the Rector No. 371

dated 21.05.2021

(day, month, year)

Level of education:

master's

(bachelor's / specialist's / master's – to fill in the required)

Graduate's Qualification:

Master

(graduate's qualification in compliance with the order of the Ministry of Education and Science of Russian Federation dated
September 12, 2013, No. 1061)

Length of Educational Programme:

2 years

(full-time education)

(part-time education)

(correspondence education)

AGREED by:

Head
of Educational Programme

V.M. Kapustin

(signature)

(day, month, year)

Chairperson
of Didactic Council

A.E. Kotelnikov

(signature)

(day, month, year)

Head
of Educational
Department
Yu.N. Razoumny

(signature)

(day, month, year)

1. EDUCATIONAL PROGRAMME GOAL (MISSION)

The social relevance (mission) of the Educational Programme "Oil and Gas Engineering / Технологии добычи и транспортировки нефти и газа" in the higher education field 21.04.01 «Oil and Gas Engineering» is the formation of a highly qualified, competent graduate who will be in demand on the labor market.

The main goal of the Educational Programme is to develop students' personal qualities, as well as to form general cultural (universal), general professional and professional competencies in accordance with the requirements of the Educational Standard of RUDN University / Federal State Educational Standard of Higher Education field 21.04.01 «Oil and Gas Engineering».

In the field of training students in the higher education field 21.04.01 «Oil and Gas Engineering»: obtaining a higher education (master's degree) that allows the graduate to work successfully in the oil and gas sector, have universal, general professional and specialized professional competencies contributing to his social mobility and competitiveness in the labor market, taking into account the specifics of the region.

In the field of personal education, the goal of the Educational Programme is the formation of social and personal qualities of students: purposefulness, organization, diligence, responsibility, citizenship, communication, patriotism, tolerance.

The implementation of a competent approach in the formation of graduates' competencies is ensured by a combination of academic and extracurricular activities, the socio-cultural environment.

Students acquire skills in research, technology, organizational and managerial work, allowing them to carry out professional activities in senior positions in Russian and international organizations of the oil and gas complex, as well as in research organizations.

2. EDUCATIONAL PROGRAMME RELEVANCE, SPECIFICITY, AND UNIQUENESS

The education program "Oil and Gas Engineering / Технологии добычи и транспортировки нефти и газа" in the higher education field 21.04.01 «Oil and Gas Engineering» trains specialists of high qualification and broad fundamental education related to the high-tech sector that ensures the competitive formation of the oil and gas complex both in the Russian Federation and abroad.

Obtaining a higher education (master's degree) in this Educational Programme allows the graduate to successfully carry out professional activities in Russian and international companies specializing in the development of oil and gas fields, as well as the transport of hydrocarbons, in organizations that control labor safety and environmental aspects of the activities of oil and gas enterprises, as well as in research organizations.

An important feature of the learning process is the possibility of obtaining knowledge, skills and abilities in disciplines that consider the development of oil and gas fields and the transport of oil and gas.

3. LABOUR MARKET NEEDS FOR PERSONNEL TRAINING IN EDUCATIONAL PROGRAMME PROFILE

Graduates who have mastered this program are oriented to work at any enterprises of the oil and gas complex: design firms, oil and gas producing companies, organizations operating pipeline transport, enterprises of the oil refining industry; research centers, higher educational institutions.

5. SPECIAL REQUIREMENTS FOR POTENTIAL APPLICANTS

For admission to the programme, there are Admission Rules approved by the relevant local normative act and available on the official website of RUDN university.

6. FEATURES OF EDUCATIONAL PROGRAMME IMPLEMENTATION

6.1. The Educational Programme is implemented using distance learning technologies and elements of e-learning through the Telecommunication Educational and Information System of the Peoples' Friendship University of Russia (TUIS).

6.2. The language of implementation of the Educational Programme is *English*.

6.3. The Educational Programme *can be adapted for teaching* disabled people and people with disabilities.

6.4. The Educational Programme is implemented by Federal State Autonomous Educational Institution for Higher Education " Peoples' Friendship University of Russia named after Patrice Lumumba" (RUDN University).

The information about partner organizations involved in the implementation of the Educational Programme

Name of partner organisation	Interaction functionality (<i>students' research at a partner organisation, internships, etc.</i>)
IPNG RAS "Institute of Oil and Gas Problems"	Interaction on the issues of passing educational and industrial practices by students
OAQ Tatneft	Interaction on the issues of passing educational and industrial practices by students
OOO "Gazprom geotechnologies "	Interaction on the issues of passing educational and industrial practices by students
IPNG RAS "Institute of Oil and Gas Problems"	Interaction on the issues of passing educational and industrial practices by students
LLC Gazprom invest - Gazprom gasification	Interaction on the issues of passing educational and industrial practices by students
OOO Gazprom transgaz Moscow	Interaction on the issues of passing educational and industrial practices by students

6.5. The information on the planned introductory/advanced field internships and (or) research & development internships

Internship*	Internship location (<i>organisation name and location</i>)
Technological internship (educational, inside internship)	OOO "Gazprom geotechnologies " IPNG RAS "Institute of Oil and Gas Problems" OOO Gazprom transgaz Moscow
Research work (obtaining primary skills of research work) (educational, inside internship)	Department of Subsoil Use and Oil and Gas En-gineering, RUDN University, Moscow
Technological internship (industrial, inside/ outside internship)	IPNG RAS "Institute of Oil and Gas Problems" OAO Tatneft OOO "Gazprom geotechnologies " IPNG RAS "Institute of Oil and Gas Problems" LLC Gazprom invest - Gazprom gasification OOO Gazprom transgaz Moscow
Research work (industrial, inside internship)	IPNG RAS "Institute of Oil and Gas Problems" OAO Tatneft OOO "Gazprom geotechnologies " IPNG RAS "Institute of Oil and Gas Problems" LLC Gazprom invest - Gazprom gasification OOO Gazprom transgaz Moscow
Pre-diploma internship (industrial, inside/ outside internship)	IPNG RAS "Institute of Oil and Gas Problems" OAO Tatneft OOO "Gazprom geotechnologies " IPNG RAS "Institute of Oil and Gas Problems" LLC Gazprom invest - Gazprom gasification OOO Gazprom transgaz Moscow Department of Subsoil Use and Oil and Gas En-gineering, RUDN University, Moscow

* The section should indicate the type (introductory/advanced field internship), the kind (orientation, technological, research, pre-graduate, etc.), and the mode (intramural/ extramural) of internship.

7. CHARACTERISTICS OF EDUCATIONAL PROGRAMME GRADUATE'S PROFESSIONAL ACTIVITIES

7.1. The field(s) of professional activities of the Educational Programme graduate, where he/she can carry out his/her professional activities:

- Extraction of oil, gas and gas condensate.
- Calculation and management of hydrocarbon reserves.
- Control of the technical condition, technical diagnostics of objects and structures of the oil and gas complex.
- Diagnosis of main oil and oil product pipelines.

7.2. The type(s) of professional activities tasks, which the graduate is trained to solve when mastering the Educational Programme:

- technological (main);
- research;
- organizational and managerial.

7.3. The list of generalised labour functions and labour functions which are related to the professional activities of the Educational Programme graduate and are taken into account in the course of its development.*

Code and title of occupational standard	Generalised labour functions			Labour functions		
	Code	Title	Skill level	Code	Title	Level (sublevel) of qualification
19.007 Oil, gas and gas condensate production specialist	D	Organization hydrocarbon production	Higher education - specialist or master's degree and additional professional education - advanced training programs or Higher (technical) education - specialty or master's degree and additional professional education - professional retraining programs in the field corresponding to the type of professional activity, for non-core education and advanced training programs	Organization of the production process of hydrocarbon production	D/01.7	7
				Organization of maintenance and repair of equipment for the extraction of hydrocarbon raw materials	D/02.7	7
				Improving the efficiency of the production process and the operation of hydrocarbon production equipment	D/03.7	7
				Management of the personnel of the hydrocarbon production unit	D/04.7	7
	E	Management of hydrocarbon production	Higher education - specialist or master's degree and additional professional education - advanced training programs or Higher (technical) education -	Management of the organization of the hydrocarbon production process	E/01.7	7
				Management of work to improve the efficiency of hydrocarbon production	E/02.7	7
				Management of the organization of new	E/03.7	7

Code and title of occupational standard	Generalised labour functions			Labour functions		
	Code	Title	Skill level	Code	Title	Level (sublevel) of qualification
			specialty or master's degree and additional professional education - professional retraining programs in the field corresponding to the type of professional activity, for non-core education and advanced training programs	construction and technical re-equipment of hydrocarbon production facilities		
19.026 Specialist for technical control and diagnostics of objects and structures of the oil and gas complex	C	Management of the system for monitoring the technical condition and technical diagnostics at the facilities and structures of the oil and gas complex	Higher Education - Master's or Specialist Programs Periodic (every five years) training for additional professional programs	Identification of threats and analysis of risks at the facilities and structures of the oil and gas complex	C/01.7	7
				Assessment of the technical condition of objects and structures of the oil and gas complex according to non-destructive testing and/or tests	C/02.7	7
				Development of measures to reduce operational risks at the facilities and structures of the oil and gas complex	C/ 03.7	7
19.053 Specialist for diagnostics of oil and oil	F	Management of work on the diagnostic examination of	Higher education - magistracy, specialty	Management of work on diagnosing main oil and main oil	F/ 01.7	7

Code and title of occupational standard	Generalised labour functions			Labour functions		
	Code	Title	Skill level	Code	Title	Level (sublevel) of qualification
product main pipeline equipment		main oil and main oil product pipeline equipment	Additional professional education - advanced training programs	product pipelines		
				Quality control of work on diagnostic examination of main oil and main oil product pipeline equipment	F/02.7	7
				Management of the activities of the unit for diagnostic examination of main oil and main oil product pipeline equipment	F/03.7	7

* The wording of labour functions is taken from the relevant Occupational Standards.

8. REQUIREMENTS FOR EDUCATIONAL PROGRAMME OUTCOMES

8.1. Upon completion of the Educational Programme, the graduate is expected to acquire the following Generic Competences (GCs):

Code and descriptor of generic competence	Code and competence level indicator
GC-1. Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy.	<p>GC-1.1. Knows the methods of critical analysis and evaluation of modern scientific achievements; methods of critical analysis; basic principles of critical analysis.</p> <p>GC-1.2. Can analyze the task, highlighting its basic components, decompose the task; receive new knowledge based on analysis, synthesis, etc.; carry out a critical analyze of information necessary to solve the problem; collect data on complex scientific problems related to the professional field; search for information and solutions based on actions, experiment and experience.</p> <p>GC-1.3. Has the ability to study the problem of professional activity using analysis; synthesis and other methods of intellectual activity; identify scientific problems and use adequate methods to solve them; the skills of value judgments in solving professional situations.</p>
GC-2. Able to manage a project at all stages of its life cycle.	<p>GC-2.1. Knows methods for solving specific problems of the project of the declared quality and within the specified time; the basics of designing and solving a specific project problem, choosing the best way to solve it, based on current legal regulations and available resources and restrictions.</p> <p>GC-2.2. Can formulate, within the framework of the goal of the project, a set of interrelated tasks that ensure its achievement;</p> <p>GC-2.3. Has the skills of forecasting and determining the expected results of solving selected tasks; the skills of public presentation of the</p>

Code and descriptor of generic competence	Code and competence level indicator
	results of solving a specific project problem.
GC-3. Able to organize and manage team the work of the team, developing a team strategy to achieve the goal.	<p>GC-3.1. Knows the peculiarities of the behavior of selected groups of people with whom he works / interacts, takes them into account in his activities (the choice of categories of groups of people is carried out by an educational organization depending on the goals of training - by age characteristics, by ethnicity or religion, socially unprotected segments of the population, etc.);</p> <p>GC-3.2. Can foresee the results (consequences) of personal actions and plans a sequence of steps to achieve a given result; anticipates the results (consequences) of personal actions and plans a sequence of steps to achieve a given result;</p> <p>GC-3.3. Has the skills to effectively use the cooperation strategy to achieve the set goal, determines his role in the team; effective interaction with other team members, incl. participates in the exchange of information, knowledge and experience, and the presentation of the results of the team's work.</p>
GC-4. Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	<p>GC-4.1. Knows computer technologies and information infrastructure in the organization; factors for improving communication in an organization, communication technologies in professional interaction; characteristics of communication flows; the importance of communication in professional interaction; methods of research of the communicative potential of the individual; modern means of information and communication technologies.</p> <p>GC-4.2. Can create in Russian and foreign languages written texts of scientific and official-business style of speech on professional issues; explore the flow of information on management communications; define internal communications in the organization; to make editorial and proofreading corrections of texts of scientific and official business styles of speech in Russian and foreign languages; analyze the system of communication links in the organization.</p> <p>GC-4.3. Has the principles of oral and written communications, including in a foreign language; methods for implementing the results of one's own and team activities using communication technologies; technology for building effective communication in the organization; transfer of professional information in information and telecommunication networks.</p>
GC-5. Able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	<p>GC-5.1. Knows the psychological foundations of social interaction aimed at solving professional problems; basic principles of organizing business contacts; methods of preparation for negotiations, national, ethno-cultural and confessional characteristics and folk traditions of the population; basic concepts of interaction between people in an organization, features of dyadic interaction.</p> <p>GC-5.2. Can find and use the information necessary for self-development and interaction with others about the cultural characteristics and traditions of various social groups; competently, accessible to express professional information in the process of intercultural interaction; observe ethical standards and human rights; analyze the features of social interaction, taking into account national, ethno-cultural, confessional characteristics; non-discriminatory and constructive interaction with people, taking into account their socio-</p>

Code and descriptor of generic competence	Code and competence level indicator
	<p>cultural characteristics in order to successfully complete professional tasks and strengthen social integration;</p> <p>GC-5.3. Has the skills to organize productive interaction in a professional environment, taking into account national, ethno-cultural, confessional characteristics; the skills to overcome communicative, educational, ethnic, confessional and other barriers in the process of intercultural interaction; the necessary knowledge for the historical development of Russia (including major events, major historical figures) in the context of world history and a number of cultural traditions of the world (depending on the environment and objectives of education), including world religions, philosophical and ethical teachings.</p>
<p>GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment.</p>	<p>GC-6.1. Knows their resources and their limits (personal, situational, temporary, etc.), for the successful completion of the assigned work; the basics of planning the long-term goals of their own activities, taking into account the conditions, means, personal opportunities, stages of career growth, the time perspective for the activity development and the requirements of the labor market.</p> <p>GC-6.2. Can realize the intended goals of the activity, taking into account the conditions, means, personal capabilities, stages of career growth, time perspective for the development of activities and the requirements of the labor market; critically assess the efficiency of using time and other resources in solving the tasks, as well as regarding the result obtained.</p> <p>GC-6.3. Has the skills to determine an effective course of action in the field of professional activity; making decisions at the level of one's own professional activity; the skills in planning their own professional activities.</p>
<p>GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data.</p>	<p>GC-7.1. Knows the technologies for collecting, processing, analyzing and interpreting information in digital environments; rights and obligations governing relations between people, social communities, organizations.</p> <p>GC-7.2. Can assess the risks and threats associated with the use of information and communication technologies in their professional activities, knows how to level them with available means; apply and adapt known methods and technologies of working with information to new tasks due to changing socio-economic conditions; find and analyze relevant legal and economic information sufficient to make informed decisions; apply legal knowledge in the analysis of conflict situations.</p> <p>GC-7.3. Has the information technologies of communication, search, processing and storage of information; the skills to prevent negative legal and economic consequences of their own actions or inactions.</p>

8.2. Upon completion of the Educational Programme, the graduate is expected to acquire the following general professional competences (GPCs):

Code and descriptor of general professional competence	Code and competence level indicator
GPC-1. Able to solve production and/or research tasks based on fundamental knowledge in the oil and gas field.	<p>GPC-1.1. Knows the methods and technologies (including innovative ones) of development in the field of Oil and Gas Engineering, scientific and methodological support of professional activity, principles of professional ethics.</p> <p>GPC-1.2. Can carry out research activities for the development and implementation of innovative technologies in the field of Oil and Gas Engineering; develop programs for monitoring and evaluating the results of the implementation of professional activities; develop information and methodological materials in the field of professional activity; use the fundamental knowledge of professional activity to overcome specific challenges of oil and gas production.</p> <p>GPC-1.3. Has the skills of physical and software modeling of separate fragments of the process of choosing the best option for specific conditions; skills in analyzing the causes for the quality reduction of technological processes and suggests effective methods to improve the quality of work in various technological operations; the skills in the use of modern tools and methods for planning and controlling projects related to the complications arising in the course of work.</p>
GPC-2. Able to design oil and gas production facilities	<p>GPC-2.1. Knows the normative legal documents regulating the requirements for professional activity; algorithm for organizing work in the process of designing oil and gas production facilities; aspects of working in contact with the supervisor.</p> <p>GPC-2.2. Can apply the methods and technology of designing the main and additional processes of oil and gas production; formulate goals for the performance of work and propose ways to achieve them; own the methodology and technology for designing oil and gas production facilities; apply an activity approach to design problems in the field of oil and gas production; evaluate the convergence of the results of calculations obtained by various methods.</p> <p>GPC-2.3. Has the principles and techniques of designing oil and gas production facilities; methods for developing a scientific and methodological approach to the design of oil and gas production processes; has the skills to promptly fulfill the requirements of the working project; the skills to work in modern PCs, using new methods and software packages.</p>
GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	<p>GPC-3.1. Knows methods for evaluating the types of entrepreneurial activities used in the enterprise.</p> <p>GPC-3.2. Can use the basics of logistics, in relation to an oil and gas enterprise, when the main technological operations are performed in conditions of uncertainty; put into practice the elements of production management; use the opportunities for entrepreneurial activities at the entrusted facility and its legislative regulation; find the possibility of combining the performance of basic duties with elements of entrepreneurship.</p> <p>GPC-3.3. Has the skills of personnel management in a small production unit.</p>
GPC-4. Able to find and process the information required for decision-making	GPC-4.1. Knows the technology of conducting standard experiments on standard equipment in the laboratory and in production; a complex of

Code and descriptor of general professional competence	Code and competence level indicator
in scientific research and in practical technical activities	<p>modern methods for processing the results of research, practical technical activities using existing equipment, instruments and materials.</p> <p>GPC-4.2. Can independently search, analyze and select the necessary information, organize, transform, store and transmit it; analyze the internal logic of scientific knowledge; justify their worldview and social position and apply the acquired knowledge in areas not related to professional activities; assess innovation risks; compare and process the results of research activities using standard equipment, instruments and materials.</p> <p>GPC-4.3. Has the technique of experimentation using software packages; the main directions of development of innovative technologies in the oil and gas industry; the skills in developing innovative approaches in specific technologies with the help of AWS.</p>
GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	<p>GPC-5.1. Knows the complex of modern technological processes and productions in the field of Oil and Gas Engineering; the modern innovative achievements and scientific research carried out at the present stage; methods and principles of systematization and generalization of the results of achievements in the oil and gas industry and related fields; main technologies for search, exploration and organization of oil and gas production in Russia and abroad, standards and specifications, sources of information, mass media and multimedia technologies.</p> <p>GPC-5.2. Can consciously perceive information, independently search, extract, systematize, analyze and select information necessary for solving problems, organize, transform, store and transmit it; interpret the results of laboratory and technological studies in relation to specific conditions.</p> <p>GPC-5.3. Has the methods of collecting, processing and interpreting the information received, using modern information technologies and applied hardware and software, methods of protecting, storing and presenting information.</p>
GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge	<p>GPC-6.1. Knows the requirements of educational standards, the regulatory framework for organizing educational activities, the value bases of education and professional activities, the essence, structure, possibilities of using the educational environment to achieve personal, meta-subject and subject learning outcomes and ensure the quality of the educational subject being taught, safety requirements educational environment.</p> <p>GPC-6.2. Can communicate with the audience, to interest listeners, to independently plan educational work within the framework of the educational program in subjects based on his own developments.</p> <p>GPC-6.3. Has the skills of business communication, the basics of management in the organization of the work of the team in the performance of a certain research task.</p>

8.3. The list of professional competencies (PC)* that a graduate who has fully mastered the Educational Programme should have:

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	<p>PC-1.1 Knows fundamental concepts in the field of geology of oil and gas fields, methods of forecasting, prospecting and exploration of mineral deposits; regulatory and methodological documents in the field of hydrocarbon production and development of oil and gas fields</p> <p>PC-1.2 Can use theoretical knowledge and mining and geological information to carry out technological scientific research, as well as apply knowledge of regulatory and methodological documents to assess oil and gas fields</p> <p>PC-1.3 Has the theoretical knowledge, methods of subsurface research in the field of oil and gas field development; skills to perform production, technological and engineering research in the field of hydrocarbon production, development of oil and gas fields</p>	19.007 Oil, gas and gas condensate production specialist
PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	<p>PC-2.1 Knows the methodological provisions, instructions and requirements for the geological study of the subsoil and geological exploration; the reserve estimation management policy; rules for compiling documentation in the field of reserves estimation and management; technologies for conducting, processing and interpreting geological and geophysical works; exploration technologies; national and global trends in the development of advanced technologies</p> <p>PC-2.2 Can manage the production activities of the entrusted structural unit; check the design documentation for compliance with the requirements of existing norms and rules; introduce advanced technologies in the process of prospecting and exploration of oil and gas fields; develop proposals and take prompt measures aimed at improving the quality of activities work</p> <p>PC-2.3 Has the skills for studying Russian and foreign experience in matters of assessing and managing reserves; skills for preparing proposals for new methods and technologies in the field of geological exploration and reserve estimation; the skills for supervising the execution of case studies and research and development activities</p>	19.007 Oil, gas and gas condensate production specialist
PC-3 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-3.1 Knows the principles, physical foundations, technical support of technical control and diagnostic methods, modern developments in the field of strength of materials, fracture mechanics, materials technology and materials science; design features, manufacturing technology, operation and repair of the control object, types and types of defects, probable zones of their formation, taking into account the loads acting on the object and other factors, principles, physical	19.026 Specialist for technical control and diagnostics of objects and structures of the oil and gas complex

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
	<p>foundations, technical support for the types and methods of technical control and diagnostics; principles of construction, functional diagrams and rules for operating equipment for a given method of control, rules for selecting and checking the quality of used consumable flaw detection materials; control systems used to check objects (products) of a certain type; metrological support; standards, calculation methods and other applicable regulatory documents and rules for assessing the technical condition; harmful environmental factors of this control method and ways to prevent their impact on the environment and humans; principles of planning and organization of work of technical control and diagnostic units, current state and prospects for the development of technical control and diagnostic methods; rules for electrical safety and fire safety, rules for the construction and safe operation of facilities</p> <p>PC-3.2 Can determine the methods, equipment, technologies and techniques to be used for specific types of objects; perform control operations, evaluate and identify the results of control and testing, issue conclusions on the results of technical control and diagnostics; organize, conduct and manage calculations and experimental work to assess the technical condition</p> <p>PC-3.3 Has the skills to perform verification calculations, taking into account the identified defects; assessment of the mutual influence of various defects on the technical condition of the control object; determining the need for additional research in order to clarify the determining parameters of the technical condition; development of measures to reduce operational risks based on risk analysis, minimization of operational risks</p>	
<p>PC-4 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms</p>	<p>PC-4.1 Knows the requirements and GOSTs for the preparation of technical documentation, basic methods of geological and industrial assessment of oil and gas fields; methods of geological-industrial and geological-economic assessment (GEO) of new geological exploration projects, taking into account all the uncertainties and risks of their implementation</p> <p>PC-4.2 Can draw up and draw up technical documentation for the implementation of technological processes in the field of oil and gas field development, transportation and processing of oil and oil products; apply new methods of geological and industrial evaluation of oil and gas fields; determine the geological resources and the probability of finding a deposit, its production potential; carry out planning and evaluation</p>	<p>19.007 Oil, gas and gas condensate production specialist</p>

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
	<p>of infrastructure solutions; determination of costs for the discovery and development of a field</p> <p>PC-4.3 Has the methodology for preparing primary reporting, including work schedules, instructions, plans, estimates, applications for materials, equipment according to approved forms</p>	
PC-5 Capable of applying the basic principles of rational use of natural resources and environmental protection	<p>PC-5.1 Knows the legal and methodological framework of the procedure for conducting environmental impact assessment EIA and environmental expert activities for use in professional activities; fundamentals of the theory and normative legal acts of the integrated development and rational use of natural resources and environmental protection; the procedure for conducting a geological examination of projects, regulatory documents for compiling an environmental passport</p> <p>PC-5.2 Can assess the state of the environment when conducting complex geological and geographical studies; use mechanisms for the rational use of natural resources and environmental protection; apply regulatory and methodological documents to assess and prevent environmental damage at production facilities</p> <p>PC-5.3 Has the methodology of rational use of natural resources and environmental protection; a system of methods (EIA) and conducting state environmental expertise for successful research and production activities; skills and knowledge to assess environmental damage at production facilities, modern methods for eliminating the consequences and preventing environmental damage at production facilities</p>	19.007 Oil, gas and gas condensate production specialist, 19.026 Specialist for technical control and diagnostics of objects and structures of the oil and gas complex
PC-6 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	<p>PC-6.1 Knows:</p> <p>The main types of applied systems for assessing the quality of geological types of work in the development of oil and gas fields, transportation and processing of oil and gas; ISO-9001 quality system, GKZ regulations and classification of oil and gas reserves</p> <p>Requirements of regulatory legal acts of the Russian Federation, local regulations, administrative documents and technical documentation in the field of hydrocarbon production</p> <p>Technological processes of hydrocarbon production</p> <p>Purpose, device and principle of operation of equipment for the extraction of hydrocarbon raw materials</p> <p>Physical and chemical properties of hydrocarbon raw materials, chemical reagents, the procedure and rules for their disposal</p> <p>Technological modes, well operation parameters</p>	19.007 Oil, gas and gas condensate production specialist

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
	<p>Standards for technological losses of hydrocarbon raw materials during production in accordance with the accepted scheme and development technology</p> <p>The influence of various processes occurring in the reservoir on the productivity factor of a production well</p> <p>The procedure for measuring the productivity factor of a production well</p> <p>Methods for calculating the productivity factor and skin effect according to well surveys with recording the pressure recovery curve</p> <p>Purpose, device and principle of operation of equipment for mechanized production of hydrocarbon raw materials</p> <p>Standards, specifications, guidelines for the development and execution of technical documentation</p> <p>Types of emergencies during well operation, their causes and methods of prevention and elimination</p> <p>Structure, interaction of means of an automated process control system, telemechanics, automatic control systems for hydrocarbon production equipment, ways to control them</p> <p>Requirements for labor protection, industrial, fire and environmental safety</p> <p>PC-6.2 Can:</p> <p>Organize and conduct quality control of work in the development of oil and gas fields, transportation and processing of oil and gas at different stages of the study of specific objects</p> <p>Evaluate the residual life of hydrocarbon production equipment</p> <p>Analyze inflow characteristics in a vertical, horizontal or multilateral well</p> <p>Predict the change in the inflow characteristics from the reservoir to the well, taking into account the reservoir operation mode</p> <p>Develop operating instructions for hydrocarbon production equipment</p> <p>Control the operation of equipment for artificial lift of hydrocarbons</p> <p>Identify wells operating with deviations from the planned regime</p> <p>Conduct emergency drills with subordinate personnel according to the action plan for localization and elimination of accidents and incidents at hydrocarbon production facilities</p> <p>PC-6.3 Has:</p> <p>The methodology for assessing the quality of all types of work in the development of oil and gas fields,</p>	

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
	<p>transportation and processing of oil and gas at different stages of the study of specific objects</p> <p>Skills for organizing and monitoring the implementation of plans and tasks for the extraction of hydrocarbons</p> <p>Skills for operational management of production and monitoring compliance with hydrocarbon production technology</p> <p>Skills for monitoring compliance with the specified operating mode of well equipment, piping, oil and gas field pipelines, prefabricated pipelines, gas pipelines, pipelines, inhibitor pipelines in accordance with the requirements of the technological regulations of the installation, operating instructions and passports of equipment manufacturers</p> <p>Skills to analyze the dynamics of hydrocarbon production. Organization of providing jobs with up-to-date technological documentation</p> <p>Skills in organizing monitoring and control of the operation of the field and wells</p> <p>Skills of control and management of work on the preparation and maintenance of technical documentation of the unit</p> <p>Skills of control and management in the direction of compliance with the requirements of labor protection, industrial, fire and environmental safety in the unit</p> <p>Skills to control and manage the preparation of reports on the production of hydrocarbons</p>	
<p>PC-7 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities</p>	<p>PC-7.1 Knows:</p> <p>Methods for organizing work on in-line diagnostic inspection of the MOP and MOPP using in-line inspection devices</p> <p>Organizational and administrative documents, regulatory and methodological materials in the field of quality control of work on the diagnostic examination of the MOP and MOPP</p> <p>List of scientific and technical documentation, the use of which is associated with the performance of work on the diagnosis of MOP and MOPP objects</p> <p>The procedure for the formation of long-term development plans in the field of diagnostic work at the facilities of MOP and MOPP</p> <p>The procedure for the development of design, executive and operational documentation for the direction of activity</p> <p>Rules for working with specialized software systems</p> <p>Requirements for labor protection, industrial, fire and environmental safety</p> <p>PC-7.2 Can:</p>	<p>19.053 Specialist for diagnostics of oil and oil product main pipeline equipment</p>

Code and descriptor of professional competence	Code and competence level indicator	Code and title of occupational standard for relevant PC
	<p>Determine the scope and procedure for performing work on the diagnostic examination of the MOP and MOPP</p> <p>Assess the compliance of work performance with the requirements of the technological process for diagnosing objects of MOP and MOPP</p> <p>Determine the composition and sequence of preparatory work for non-destructive quality control of structural elements of objects and structures of MOP and MOPP, mechano -technological equipment and metal structures of MOP and MOPP tanks, technical devices, materials, products, parts, assemblies, welded joints</p> <p>Ensure the prevention and elimination of violations of the production process of diagnosing objects of MOP and MOPP by NDT methods</p> <p>Determine the procedure for performing work to identify defects based on the results of additional flaw detection control of MOP and MOPP objects, including internal ones, measurement and refinement of their parameters</p> <p>Analyze advanced domestic and foreign experience in the field of diagnosing MOP and MOPP objects</p> <p>Use specialized software products in the field of activity</p> <p>Comply with the requirements of industrial safety and labor protection at the facilities of MOP and MOPP</p> <p>PC-7.3 Has:</p> <p>Skills in planning work on diagnosing MOP and MOPP objects</p> <p>Skills in managing work on processing the results of diagnosing objects of MOP and MOPP</p> <p>Skills for verification and approval of production documentation for the diagnosis and control of MOP and MOPP facilities</p> <p>Skills to control the regulatory and technical support of work on diagnosing objects of MOP and MOPP</p> <p>Skills to control data entry into specialized software systems, and their verification</p>	
<p>PC-8 Able to organize the work of performers, find and make management decisions, rules for ensuring the safety of technological processes, as well as personnel when working in the field, in laboratories, in office processing</p>	<p>PC-8.1 Knows the safety rules and safety precautions when working in the field, in laboratories, during office processing</p> <p>PC-8.2 Can justify and make management decisions in the field of organization and regulation of labor; conduct briefings on ensuring the safety of technological processes, as well as personnel when working in the field, in laboratories, during office processing</p> <p>PC-8.3 Has the methodology for ensuring the safety of technological processes, as well as personnel when working in the field, in laboratories, during office processing</p>	<p>19.053 Specialist for diagnostics of oil and oil product main pipeline equipment</p>

*The Educational Programme's developer formulates the PC, taking into account the requirements of occupational standards and the Educational Programme field of study.

9. MATRIX OF COMPETENCES that students acquire when mastering the Educational Programme “Oil and Gas Engineering / Технологии добычи и транспортировки нефти и газа” in the higher education field 21.04.01 «Oil and Gas Engineering»

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
Block 1.	Disciplines (modules)							
B 1.O	Compulsory (Disciplines) Module							
B 1.O. 01	Base component							
B 1.O. 01.01	Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности				GC-4.1; GC-4.2; GC-4.3	GC-5.1; GC-5.2; GC-5.3	GC-6.1; GC-6.2; GC-6.3	
B 1.O. 01.02	History and methodology of subsoil use / История и методология недропользования						GC-6.1; GC-6.2; GC-6.3	
B 1.O. 02	Variable component							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
B 1.O. 02.01	Modern aspects of geological and geophysical research in the oil and gas industry / Современные аспекты геолого-промысловых и геофизических исследований в нефтегазовом деле							GC-7.1; GC-7.2; GC-7.3
B 1.O. 02.02	Machinery and equipment for field development and transportation of hydrocarbons / Машины и оборудование для разработки месторождений и транспорта углеводородов							
B 1.O. 02.03	Geoinformation Systems and Applications / Геоинформационные системы и их применение							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
B 1.O. 02.04	Technological processes of pipeline transport / Технологические процессы трубопроводного транспорта							
B 1.O. 02.05	Technologies for developing prospective hydrocarbon reserves / Технологии разработки перспективных запасов углеводородов							
B 1.O. 02.06	Information technologies in the oil and gas industry / Информационные технологии в нефтегазовом комплексе				GC-4.1; GC-4.2; GC-4.3			GC-7.1; GC-7.2; GC-7.3
B 1.O. 02.07	Current development of the production of unconventional hydrocarbon resources in the world	GC-1.1; GC-1.2; GC-1.3						

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
	/ Современное развитие добычи нетрадиционных ресурсов углеводородов в мире							
B 1.O. 02.08	Methods of oil production intensification / Методы интенсификации добычи нефти							
B 1.O. 02.09	Fundamentals of construction and operation of pipeline transport / Основы строительства и эксплуатации трубопроводного транспорта							
B 1.C	University Disciplines Module							
B 1.V.V .01	Electives							
B 1.V.DV .01.01	Advanced oil and gas processing equipment and product quality management / Современное							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
	оборудование для переработки нефти и газа и управление качеством производимой продукции							
B 1.V.DV .01.02	Modern stream in oil and gas processing in Russia / Современные направления нефтегазопереработки в России							
B 1.V.DV .02	Electives							
B 1.V.DV .02.01	Economics and management of oil and gas production / Экономика и управление нефтегазовым производством	GC-1.1; GC-1.2; GC-1.3	GC-2.1; GC-2.2; GC-2.3	GC-3.1; GC-3.2; GC-3.3				
B 1.V.DV .02.02	Project management in the oil and gas industry / Управление	GC-1.1; GC-1.2; GC-1.3	GC-2.1; GC-2.2; GC-2.3	GC-3.1; GC-3.2; GC-3.3				

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
	проектами в нефтегазовой отрасли							
B 1.V.DV .03	Electives							
B 1.V.DV .03.01	Innovative technologies for the development of hydrocarbon deposits / Инновационные технологии разработки месторождений углеводородов							
B 1.V.DV .03.02	Innovative technologies for the transportation and storage of hydrocarbons / Инновационные технологии транспортировки и хранения углеводородов							
B 1.V.DV .04	Electives							
B 1.V.DV .04.01	Diagnostics of oil and petroleum products main pipeline facilities /							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
	Диагностирование объектов магистральных трубопроводов нефти и нефтепродуктов							
B 1.V.DV .04.02	Improving the efficiency of the production process and operation of equipment for the extraction of hydrocarbons / Повышение эффективности процесса добычи и работы оборудования по добыче углеводородного сырья							
B 1.V.DV .04.03	Comprehensive analysis of processing, storage and marketing of hydrocarbons / Комплексный анализ переработки, хранения и сбыта углеводородов							
Block 2	Practice							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
B 2.O	Compulsory (Disciplines) Module							
B 2.O. 01	Base component							
B2.O.01.01(U)	Technological practice (educational) / Технологическая практика (учебная)							
B2.O.01.02(N)	Research work (obtaining primary skills in research work) / Научно-исследовательская работа (получение первичных навыков научно-исследовательской работы)							
B 2.O. 02	Вариативная компонента							
B2.O.02.01(P)	Technological practice (industrial) / Технологическая практика (производственная)							
B 2.C	University Disciplines Module							

Code	Courses/modules that form students' competences	GENERIC COMPETENCES						
		GC-1 Able to search, make a critical analysis of problem situations based on a systematic approach, develop a strategy	GC-2 Able to manage a project at all stages of its life cycle	GC-3 Able to organize and manage team work, develop a team strategy to achieve the goal	GC-4 Able to carry out business communication in oral and written forms in the state and foreign(s) language(s)	GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	GC-6. Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	GC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
B2.V.01(N)	Research work / Научно-исследовательская работа							
B2.V.02(Pd)	Pre-graduate practice / Преддипломная практика	GC-1.1; GC-1.2; GC-1.3					GC-6.1; GC-6.2; GC-6.3	
B3	State final certification	GC-1.1; GC-1.2; GC-1.3	GC-2.1; GC-2.2; GC-2.3	GC-3.1; GC-3.2; GC-3.3	GC-4.1; GC-4.2; GC-4.3	GC-5.1; GC-5.2; GC-5.3	GC-6.1; GC-6.2; GC-6.3	GC-7.1; GC-7.2; GC-7.3

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
Block 1.	Disciplines (modules)						
B 1.O	Compulsory (Disciplines) Module						
B 1.O. 01	Base component						
B 1.O. 01.01	Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности						
B 1.O. 01.02	History and methodology of subsoil use / История и методология недропользования					GPC-5.1; GPC-5.2; GPC-5.3	GPC-6.1; GPC-6.2; GPC-6.3
B 1.O. 02	Variable component						
B 1.O. 02.01	Modern aspects of geological and geophysical research in the oil and gas industry / Современные аспекты геолого-промысловых и геофизических исследований в нефтегазовом деле	GPC-1.1; GPC-1.2; GPC-1.3					

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
B 1.O. 02.02	Machinery and equipment for field development and transportation of hydrocarbons / Машины и оборудование для разработки месторождений и транспорта углеводородов		GPC-2.1; GPC-2.2; GPC-2.3				
B 1.O. 02.03	Geoinformation Systems and Applications / Геоинформационные системы и их применение				GPC-4.1; GPC-4.2; GPC-4.3	GPC-5.1; GPC-5.2; GPC-5.3	
B 1.O. 02.04	Technological processes of pipeline transport / Технологические процессы трубопроводного транспорта			GPC-3.1; GPC-3.2; GPC-3.3			
B 1.O. 02.05	Technologies for developing prospective hydrocarbon reserves / Технологии разработки перспективных запасов углеводородов						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
B 1.O. 02.06	Information technologies in the oil and gas industry / Информационные технологии в нефтегазовом комплексе			GPC-3.1; GPC-3.2; GPC-3.3	GPC-4.1; GPC-4.2; GPC-4.3		
B 1.O. 02.07	Current development of the production of unconventional hydrocarbon resources in the world / Современное развитие добычи нетрадиционных ресурсов углеводородов в мире	GPC-1.1; GPC-1.2; GPC-1.3			GPC-4.1; GPC-4.2; GPC-4.3		
B 1.O. 02.08	Methods of oil production intensification / Методы интенсификации добычи нефти						
B 1.O. 02.09	Fundamentals of construction and operation of pipeline transport / Основы строительства и эксплуатации						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
	трубопроводного транспорта						
B 1.C	University Disciplines Module						
B 1.V.DV .01	Electives						
B 1.V.DV .01.01	Advanced oil and gas processing equipment and product quality management / Современное оборудование для переработки нефти и газа и управление качеством производимой продукции						
B 1.V.DV .01.02	Modern stream in oil and gas processing in Russia / Современные направления нефтегазопереработки в России						
B 1.V.DV .02	Electives						
B 1.V.DV .02.01	Economics and management of oil and gas production / Экономика и управление						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
	нефтегазовым производством						
B 1.V.DV .02.02	Project management in the oil and gas industry / Управление проектами в нефтегазовой отрасли						
B 1.V.DV .03	Electives						
B 1.V.DV .03.01	Innovative technologies for the development of hydrocarbon deposits / Инновационные технологии разработки месторождений углеводородов						
B 1.V.DV .03.02	Innovative technologies for the transportation and storage of hydrocarbons / Инновационные технологии транспортировки и хранения углеводородов						
B 1.V.DV .04	Electives						
B 1.V.DV .04.01	Diagnostics of oil and petroleum products main						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
	pipeline facilities / Диагностирование объектов магистральных трубопроводов нефти и нефтепродуктов						
B 1.V.DV .04.02	Improving the efficiency of the production process and operation of equipment for the extraction of hydrocarbons / Повышение эффективности процесса добычи и работы оборудования по добыче углеводородного сырья						
B 1.V.DV .04.03	Comprehensive analysis of processing, storage and marketing of hydrocarbons / Комплексный анализ переработки, хранения и сбыта углеводородов						
Block 2	Practice						
B 2.O	Compulsory (Disciplines) Module						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
B 2.O. 01	Base component						
B2.O.01.01(U)	Technological practice (educational) / Технологическая практика (учебная)	GPC-1.1; GPC-1.2; GPC-1.3	GPC-2.1; GPC-2.2; GPC-2.3	GPC-3.1; GPC-3.2; GPC-3.3			
B2.O.01.02(N)	Research work (obtaining primary skills in research work) / Научно-исследовательская работа (получение первичных навыков научно-исследовательской работы)	GPC-1.1; GPC-1.2; GPC-1.3		GPC-3.1; GPC-3.2; GPC-3.3		GPC-5.1; GPC-5.2; GPC-5.3	GPC-6.1; GPC-6.2; GPC-6.3
B 2.O. 02	Вариативная компонента						
B2.O.02.01(P)	Technological practice (industrial) / Технологическая практика (производственная)	GPC-1.1; GPC-1.2; GPC-1.3	GPC-2.1; GPC-2.2; GPC-2.3	GPC-3.1; GPC-3.2; GPC-3.3			
B 2.C	University Disciplines Module						
B2.V.01(N)	Research work / Научно-исследовательская работа						

Code	Courses/modules that form students' competences	GENERAL PROFESSIONAL COMPETENCES					
		GPC-1. Able to solve production and /or research tasks based on fundamental knowledge in the oil and gas field	GPC-2. Able to design oil and gas production facilities	GPC-3. Able to develop scientific and technical, design and service documentation, draw up scientific and technical reports, surveys, publications, reviews	GPC-4. Able to find and process the information required for decision-making in scientific research and in practical technical activities	GPC-5. Able to evaluate the results of scientific and technical developments, scientific research and justify their own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	GPC-6. Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge
B2.V.02(Pd)	Pre-graduate practice / Преддипломная практика						
B3	State final certification	GPC-1.1; GPC-1.2; GPC-1.3	GPC-2.1; GPC-2.2; GPC-2.3	GPC-3.1; GPC-3.2; GPC-3.3	GPC-4.1; GPC-4.2; GPC-4.3	GPC-5.1; GPC-5.2; GPC-5.3	GPC-6.1; GPC-6.2; GPC-6.3

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
Block 1.	Disciplines (modules)								
B 1.O	Compulsory (Disciplines) Module								
B 1.O. 01	Base component								
B 1.O. 01.01	Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности								
B 1.O. 01.02	History and methodology of subsoil use / История и методология недропользования								
B 1.O. 02	Variable component								
B 1.O. 02.01	Modern aspects of geological and geophysical research in the oil and gas industry / Современные аспекты геолого-промысловых и геофизических исследований в нефтегазовом деле				PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3	PC-6.1; PC-6.2; PC-6.3		

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B 1.O. 02.02	Machinery and equipment for field development and transportation of hydrocarbons / Машины и оборудование для разработки месторождений и транспорта углеводородов			PC-3.1; PC-3.2; PC-3.3		PC-5.1; PC-5.2; PC-5.3	PC-6.1; PC-6.2; PC-6.3	PC-7.1; PC-7.2; PC-7.3	
B 1.O. 02.03	Geoinformation Systems and Applications / Геоинформационные системы и их применение	PC-1.1; PC-1.2; PC-1.3							
B 1.O. 02.04	Technological processes of pipeline transport / Технологические процессы трубопроводного транспорта							PC-7.1; PC-7.2; PC-7.3	PC-8.1; PC-8.2; PC-8.3
B 1.O. 02.05	Technologies for developing prospective hydrocarbon reserves / Технологии разработки перспективных запасов углеводородов				PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3			PC-8.1; PC-8.2; PC-8.3

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B 1.O. 02.06	Information technologies in the oil and gas industry / Информационные технологии в нефтегазовом комплексе								
B 1.O. 02.07	Current development of the production of unconventional hydrocarbon resources in the world / Современное развитие добычи нетрадиционных ресурсов углеводородов в мире	PC-1.1; PC-1.2; PC-1.3				PC-5.1; PC-5.2; PC-5.3			PC-8.1; PC-8.2; PC-8.3
B 1.O. 02.08	Methods of oil production intensification / Методы интенсификации добычи нефти			PC-3.1; PC-3.2; PC-3.3		PC-5.1; PC-5.2; PC-5.3	PC-6.1; PC-6.2; PC-6.3		
B 1.O. 02.09	Fundamentals of construction and operation of pipeline transport / Основы строительства и эксплуатации трубопроводного транспорта			PC-3.1; PC-3.2; PC-3.3				PC-7.1; PC-7.2; PC-7.3	
B 1.C	University Disciplines Module								

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B 1.V.DV .01	Electives								
B 1.V.DV .01.01	Advanced oil and gas processing equipment and product quality management / Современное оборудование для переработки нефти и газа и управление качеством производимой продукции	PC-1.1; PC-1.2; PC-1.3		PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3				PC-8.1; PC-8.2; PC-8.3
B 1.V.DV .01.02	Modern stream in oil and gas processing in Russia / Современные направления нефтегазопереработки в России				PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3			PC-8.1; PC-8.2; PC-8.3
B 1.V.DV .02	Electives								
B 1.V.DV .02.01	Economics and management of oil and gas production / Экономика и управление нефтегазовым производством								PC-8.1; PC-8.2; PC-8.3

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B 1.V.DV .02.02	Project management in the oil and gas industry / Управление проектами в нефтегазовой отрасли								PC-8.1; PC-8.2; PC-8.3
B 1.V.DV .03	Electives								
B 1.V.DV .03.01	Innovative technologies for the development of hydrocarbon deposits / Инновационные технологии разработки месторождений углеводородов				PC-4.1; PC-4.2; PC-4.3		PC-6.1; PC-6.2; PC-6.3		
B 1.V.DV .03.02	Innovative technologies for the transportation and storage of hydrocarbons / Инновационные технологии транспортировки и хранения углеводородов	PC-1.1; PC-1.2; PC-1.3		PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3				
B 1.V.DV .04	Electives								
B 1.V.DV .04.01	Diagnostics of oil and petroleum products main pipeline facilities / Диагностирование объектов			PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3			PC-7.1; PC-7.2; PC-7.3	

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
	магистральных трубопроводов нефти и нефтепродуктов								
B 1.V.DV .04.02	Improving the efficiency of the production process and operation of equipment for the extraction of hydrocarbons / Повышение эффективности процесса добычи и работы оборудования по добыче углеводородного сырья				PC-4.1; PC-4.2; PC-4.3		PC-6.1; PC-6.2; PC-6.3		
B 1.V.DV .04.03	Comprehensive analysis of processing, storage and marketing of hydrocarbons / Комплексный анализ переработки, хранения и сбыта углеводородов	PC-1.1; PC-1.2; PC-1.3			PC-4.1; PC-4.2; PC-4.3				
Block 2	Practice								
B 2.O	Compulsory (Disciplines) Module								
B 2.O. 01	Base component								

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B2.O.01.01(U)	Technological practice (educational) / Технологическая практика (учебная)			PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3			
B2.O.01.02(N)	Research work (obtaining primary skills in research work) / Научно-исследовательская работа (получение первичных навыков научно-исследовательской работы)	PC-1.1; PC-1.2; PC-1.3	PC-2.1; PC-2.2; PC-2.3						
B 2.O. 02	Вариативная компонента								
B2.O.02.01(P)	Technological practice (industrial) / Технологическая практика (производственная)			PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3			PC-8.1; PC-8.2; PC-8.3
B 2.C	University Disciplines Module								
B2.V.01(N)	Research work / Научно-исследовательская работа	PC-1.1; PC-1.2; PC-1.3	PC-2.1; PC-2.2; PC-2.3						

Code	Courses/modules that form students' competences	PROFESSIONAL COMPETENCES							
		PC-1 Able to use theoretical knowledge when performing technological scientific research in the field of development, transportation and processing of oil and gas	PC-2 Able to develop and implement new advanced technologies in the field of geological exploration, evaluation and estimation of hydrocarbon raw materials	PC-3 Able to assess resources, estimate and re-estimate hydrocarbon reserves for scientific and technological projects planning	PC-4 Able to manage the system for monitoring the technical condition and technical diagnostics at the facilities and plants of the oil and gas complex	PC-5 Able to draw up technical documentation for the implementation of the technological process (work schedules, instructions, plans, estimates, requests for materials, equipment, etc.), make an economic assessment of oil and gas fields in accordance with approved forms	PC-6 Able to apply the basic principles of rational use of natural resources and environmental protection	PC-7 Able to organize, manage, and carry out quality control of the main types of work in the development of oil and gas fields, transportation and processing of oil and gas	PC-8 Able to manage the work on the diagnostic examination of the main oil pipelines (MOP) and the main oil product pipelines (MOPP) facilities
B2.V.02(Pd)	Pre-graduate practice / Преддипломная практика	PC-1.1; PC-1.2; PC-1.3	PC-2.1; PC-2.2; PC-2.3	PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3		PC-6.1; PC-6.2; PC-6.3	PC-7.1; PC-7.2; PC-7.3	PC-8.1; PC-8.2; PC-8.3
B3	State final certification	PC-1.1; PC-1.2; PC-1.3	PC-2.1; PC-2.2; PC-2.3	PC-3.1; PC-3.2; PC-3.3	PC-4.1; PC-4.2; PC-4.3	PC-5.1; PC-5.2; PC-5.3	PC-6.1; PC-6.2; PC-6.3	PC-7.1; PC-7.2; PC-7.3	PC-8.1; PC-8.2; PC-8.3

