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Информация о владельце:  
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Должность: Ректор  
Дата подписания: 28.05.2024 11:42:00  
Уникальный программный ключ:  
ca953a0120d891083f939673078ef1a989dae18a

**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

## COURSE SYLLABUS

**History and methodology of subsoil use / История и методология  
недропользования**

course title

**Recommended by the Didactic Council for the Education Field of:**

21.04.01 Oil and gas engineering

field of studies / speciality code and title

**The course instruction is implemented within the professional education programme  
of higher education:**

Oil and gas engineering / Технологии добычи и транспортировки нефти и газа

higher education programme profile/specialisation title

## 1. COURSE GOALS

The goal of the course "History and methodology of subsoil use / История и методология недропользования" is intended to introduce students to the theoretical and applied foundations of subsurface use in Russia and abroad.

Studying the course "History and methodology of subsoil use / История и методология недропользования" provides for the formation of knowledge about the basic principles, subject, method and history of oil and gas business; the legal status and powers of subjects of the geological industry, the structure and content of legal relations in the field of subsurface use, legislative and bylaws regulating relations related to the use of subsurface resources, law enforcement of international treaties and agreements.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

The course "History and methodology of subsoil use / История и методология недропользования" is designed for students to acquire following competences (competences in part):

*Table 2.1. List of competences that students acquire during the course*

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-6	Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	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.
		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.
		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.
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-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.
		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

Competence code	Competence descriptor	Competence formation indicators (within this course)
		results of laboratory and technological studies in relation to specific conditions.
		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.
GPC-6	Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge	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.
		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.
		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.

### 3. ACADEMIC PROGRAMME STRUCTURE

The course refers to the core component of (B1) block of the higher educational programme curriculum.

*Table 3.1. The list of the higher education programme components that contribute to the achievement of the expected learning outcomes as the course results*

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
GC-6	Able to identify and implement the priorities of their own activities and ways to improve them based on self-assessment	Disciplines of the previous level of education	Pre-graduation Practical Training;
GPC-5	It is able to evaluate the results of scientific and technical developments, scientific research and justify its own choice, systematizing and summarizing achievements in the oil and gas industry and related fields	Disciplines of the previous level of education	Geoinformation Systems and Applications; Research work / Научно-исследовательская работа (получение первичных навыков научно-исследовательской работы);
GPC-6	Able to participate in the implementation of basic and additional professional educational programs, using special scientific and professional knowledge	Disciplines of the previous level of education	Research work / Научно-исследовательская работа (получение первичных навыков научно-исследовательской

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships* работы);

\* - filled in in accordance with the matrix of competencies and the Higher Education Programme

#### 4. COURSE WORKLOAD

The total workload of the course "History and methodology of subsoil use / История и методология недропользования" is 3 credits.

*Table 4.1 Types of academic activities during the period of the HE programme mastering*

Type of academic work	TOTAL, acc. hrs.	Semester (s)
		1
<i>Contact academic hours, acc.hrs.</i>	36	36
including:		
Lectures	18	18
Laboratory work		
Seminars (workshops/tutorials)	18	18
<i>Self-study (ies), academic hours</i>	72	72
<i>Evaluation and assessment (exam or pass/fail grading)</i>		
<b>The course total workload</b>	acc. hrs.	<b>108</b>
	Credits	<b>3</b>

#### 5. COURSE MODULE and CONTENTS

*1. Table 5.1. Content of the discipline (module) by type of academic work*

Name of the section (topic) of the discipline	Contents of the section (topic)	Type of academic work
Mining history	Introduction to the history of the origin and development of the art and skills of mining by people from their inception to the present day, as well as the progressive change in technology and technology.	Lecture, Lab work
History of the oil and gas industry development	The importance of energy resources for the country. Fuel and energy complex in the structure of the economy of the USSR and Russia. General overview of the Russian oil and gas industry.	Lecture, Lab work
History of oil and gas transportation and storage	History of the development of methods of transportation and storage of oil and petroleum products. History of pipeline transport.	Lecture, Lab work
History of development of major oil and gas fields	The main fields and indicators of oil and gas production in Russia.	Lecture, Lab work
Subsurface use methodology	The essence and feature of the methodology. Evolution of approaches to the study of subsurface use. The place of scientific knowledge about subsurface use in the classification of sciences. Levels of scientific knowledge of subsurface	Lecture, Lab work

#### 6. CLASSROOM EQUIPMENT and TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom Equipment and Technology Support Requirements

<b>Classroom for Academic Activity Type</b>	<b>Classroom equipment</b>	<b>Specialized training / laboratory equipment, software and materials for mastering the discipline (if necessary)</b>
Lecture	Classroom for conducting lecture-type classes: room 335 Set of specialized furniture; technical means: projection screen; SANYO PROextraX multimedia projector; DEPO Neos 220 system unit	
Seminar	Training room for conducting seminar-type classes: room No. 356 Set of specialized furniture; chalkboard; NEC PLASMA MONITO MODEL PX-42XM1G monitor; DEPO Neos 220 system unit	
For self-study	Training room for conducting seminar-type classes: room No. 356 Set of specialized furniture; chalkboard; NEC PLASMA MONITO MODEL PX-42XM1G monitor; DEPO Neos 220 system unit	

## 7. RESOURCES RECOMMENDED FOR COURSE

### *Main reading(sources):*

1. Vorob'ev A. E., Sinchenko A.V. Istoriya neftegazovogo dela v Rossii i za rubezhom [History of oil and gas business in Russia and abroad]. text data. Moscow: Peoples' Friendship University of Russia, 2013, 140 p—
2. Karpov V. P. Course of history of the domestic oil and gas industry : training manual. [Electronic resource]: textbook. manual / V. P. Karpov, N. Yu. Gavrilova. - Electron. dan. — Tyumen : TyuMGNUPubl., 2011, 254 p. (in Russian)
3. Ahrens, V. J. Fundamentals of mining science methodology : training manual / V. Zh.Arens, Moscow : Moscow State Mining University, 2003, 226 p. [Electronic resource]. - URL: //biblioclub.ru/index.php?page=book&id=79370
4. Kutuzov B. N. Istoriya gornogo i vzryvnogo dela : uchebnik [History of mining and blasting]. - Moscow : Moscow State Mining University, 2008, 428 p. [Electronic resource]. - URL: //biblioclub.ru/index.php?page=book&id=99658

### *Additional(optional) reading (sources):*

1. Sergeeva Z. Kh. Uglevodnaya tsivilizatsiya mezhdru proshlem i budushchem [Hydrocarbon civilization between the past and the future]: neft i razvitie v XX-XXI vv [Oil and development in the XX-XXI centuries]. — Kazan : Kazan National Research Technological University, 2012. — 196 p. (in Russian)
2. Oil and gas industry of Russia: Textbook / Yu. D. Zemenkov et al. - Omsk: OmSTU PublishingHouse, 2001. - 84 p.
3. Mstislavskaya L. P. Neftegazovoe proizvodstvo (Voprosy, problemy, resheniya):

Uchebnoe posobie [Oil and gas production (Voprosy, problemy, resheniya)].

4. Kopytov A. I., Yu. A. Istoriya gornogo dela [History of mining]. Masaev, V. V. Pershin. Edited by V. V. Pershin; Akadem. gorn. nauk, Sib. Novosibirsk, 2009, 511 p. (in Russian)

5. Mining industry of Russia and the USSR in the first quarter of the XX century: A textbook for universities E.M. Sukhanova. - Moscow : Mining Book; MGSU Publishing House, 2009. - 600 p. - (History of Mining, Vol. 1).

*Internet sources*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>
- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge"

*Internet sources*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>
- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge"

*Learning toolkits for self- studies:*

1. A course of lectures on the course "History and methodology of subsoil use / История и методология недропользования".

2. Guidelines for students on the development of the course "History and methodology of subsoil use / История и методология недропользования".

\* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the course **in TUIS!**

### **3. ASSESSMENT TOOLKIT AND GRADING SYSTEM\* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS COURSE RESULTS**

The assessment toolkit and the grading system\* to evaluate the level of competences (competences in part) formation as the course results are specified in the Appendix to the course syllabus.

\* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

**DEVELOPERS:**

Associate Professor of the Department of  
Mineral Developing and Oil&Gas Engineering  
\_\_\_\_\_  
position, educational department

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Kotelnikov A.E.  
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**Head of Educational Programme:**  
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