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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 Academic  
Council of RUDN University  
Protocol № 2022-08/24-11/1  
29.11.2024  
(date, month, year)

**PROFESSIONAL EDUCATION PROGRAMME OF HIGHER EDUCATION**

Field of Studies / Specialty:

**2.6.12. Chemical technology for fuels and high-energy substances**

(scientific speciality code and title)

Profile / Specialisation

**Chemical technology for fuels and high-energy substances**

(PhD program title)

The Educational Programme is developed in compliance with:

**Educational Standard of RUDN University**, approved by order of the Rector of RUDN University No. 139 dated March 9, 2022.

Length of Educational PhD Programme:

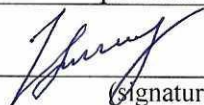
**4 years**

(full-time education)

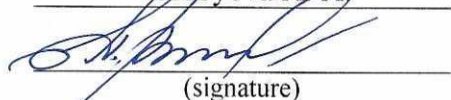
Educational PhD Programme Features: programme is implemented in English

AGREED by:

Head of Educational  
Programme  
Kapoustin V.M.

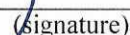
  
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Head of Educational Policy  
Department  
Verobyeva A. A.

  
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Head of Faculty

Rasounny Yu.N.

  
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Head of PhD Study  
Department

Borisova A. S.

  
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2025 г.

## 1. EDUCATIONAL PROGRAMME GOAL

*The goal of the PhD program is to prepare and defend a dissertation for the degree of Candidate of Sciences in the scientific specialty 2.6.12. Chemical technology for fuels and high-energy substances.*

## 2. BRIEF SUMMARY OF THE PROGRAMME

The program is focused on the training of highly qualified specialists in the direction of training 2.6.12. Chemical technology for fuels and high-energy substances. The curriculum is designed in such a way that it allows students to form professional competencies that are currently in demand. The purpose of the program is to create conditions for acquiring the necessary level of knowledge, skills, experience and experience for the implementation of professional activities and preparing for the defense of a scientific qualification work (dissertation) for the degree of candidate of sciences, as well as conducting scientific research in the interests of the development of science, mankind and humanitarian values. Research activities within the framework of the educational program cover the field of science and technology, which studies:

- production and technological modes of operation of facilities in the oil and chemical industries;
- basics of designing technological schemes of processes for obtaining fuels and high-energy substances;
- methods of quality control of raw materials, products and possible emissions of substances into the atmosphere;
- environmentally safe and economically viable methods of chemical and technological processes for obtaining fuels and high-energy substances;
- apply modern methods and means of research for solving specific problems of chemical and technological processes for obtaining fuels and high-energy substances;
- assess the efficiency of process control systems for chemical processes of fuel and high-energy substances;
- establish the causes of product quality reduction in petrochemical industries;
- conduct work on modelling chemical technologies of fuels and high-energy substances
- plan methods for solving scientific and technical problems;
- analyse the operation of chemical technology processes;
- work with systems modelling processes of fuels and high-energy substances;
- development of measures for energy saving and improving the quality of manufactured products.

In the process of studying, postgraduate students receive theoretical and practical training and skills in research and scientific and pedagogical work, which allow them to work effectively after completing the study of the educational program in enterprises of various fields and industries in senior positions, as well as in research and educational organizations.

## 3. LABOR MARKET NEEDS FOR PERSONAL TRAINING IN EDUCATIONAL PROGRAMME PROFILE

Graduates who have mastered this program are focused on work in Russian and international companies, enterprises, educational institutions, research organizations in various fields of industry related to subsoil use and mining sciences. State and commercial structures of science-intensive industries are interested in graduates, in particular, enterprises of oil and gas development and other leading industries, as well as for the development of an element base used in the digitalization of various sectors of the economy.

Graduates who have mastered this program are oriented to work in the Russian and international companies specializing in the exploration and development of mineral deposits: design and development, production, operating organizations, research centers, higher educational institutions.

Analysis of the status and trends of development of research and educational activities in the field of mining and oil and gas field geology shows that the training of researchers in this industry is one of the necessary conditions for increasing the capacity and competitiveness of domestic educational institutions of higher education, research organizations and enterprises of mining and geological industry, carrying out within their activities scientific and educational.

In the professional sphere, the main consumers of the educational program are such organizations and enterprises in Russia as:

- Ministry of Energy of the Russian Federation
- Ministry of Natural Resources and Environment of the Russian Federation
- Federal Agency for Subsoil Use (Rosnedra);
- All-Russian Research Institute of Geology of Foreign Countries
- All-Russian Research Geological Oil Institute (VNIGNI, Moscow)
- All-Russian Research Institute of Organization, Management and Economics of Oil and Gas Industry (Moscow)
- Transneft, Gazprom, Zarubezhneft, Novatek; Yamal LNG; Caspian Pipeline Consortium, Tatneft, LUKoil, TNK, Slavneft, Rosneft, VSNK, Surgutneftegas, NGDU LeninogorskNeft, JSC All-Russian Oil and Gas Research Institute, Chevron Oil Corporation (USA), Elf Aquitaine Oil Company (France), Erdoyle Erdgas Oil and Gas Company (Germany), Vietsovpetro (Vietnam), Petron Industries Inc. etc.

#### **4. REQUIREMENTS FOR APPLICANTS APPLYING TO THE PHD PROGRAMME**

For admission to the program, the Admission Rules apply, approved by the relevant local regulatory act and posted in the public domain on the official website of the RUDN University.

#### **5. STRUCTURE AND WORKLOAD OF THE EDUCATIONAL PROGRAMME FOR PhD STUDIES**

Duration of mastering the postgraduate program: 4 years.

Form of education: full-time.

One credit unit corresponds to 36 academic hours.

<b>No.</b>	<b>PhD programme structure</b>	<b>Workload, credit units</b>
1	Scientific Component	210
1.1	Research activity aimed at preparing for a thesis defense	178
1.2	Preparation of publications and (or) patent applications provided for in paragraph 5 of the Educational Standard of RUDN University	24
1.3	Intermediate certification at the stages of scientific research	8
2	Educational Component	24
2.1	Disciplines (modules)	13
2.2	Internship	5
2.3	Intermediate certification in disciplines (modules) and internship	6
3	Final attestation	6
PhD programme workload in credit units:		240

#### **6. CHARACTERISTICS OF EDUCATIONAL PROGRAMME GRADUATE'S PROFESSIONAL ACTIVITIES**

The field(s) of professional activities of the Educational Programme graduate, where he/she can carry out his/her professional activities in science and technology related to the technology of oil, gas, condensate, hydrocarbon raw materials, natural bitumen and the production of various products of their processing, including the creation of technologies for the production of alternative fuels and products:

- technologies and schemes of oil stock refining processes; design of technologies and main indicators of equipment of facilities for raw material processing; technologies of oil preparation for refining; energy-saving and environmentally effective technologies;
- catalysts and catalytic processes for hydrocarbon raw processing;
- technologies for the preparation of commercial petroleum products;
- chemotechnological aspects of physical and chemical oil and gas technology;
- technologies of production of additives for fuels and oils and scientific basis for their application;
- new technologies for obtaining bioproducts and alternative fuels;
- integrated schemes of hydrocarbon raw processing, basics of design and optimization of oil and gas chemical productions;
- modelling of technological processes- teaching activity in the field of development and operation of oil and gas fields.

## **7. LOCATION OF IMPLEMENTATION OF THE PHD PROGRAMME**

The PhD program is implemented by the Federal State Autonomous Educational Institution of Higher Education Peoples' Friendship University of Russia named after Patrice Lumumba.

The information about partner organisations involved in the implementation of the PhD programme:

<b>Internship and Scientific Research</b>	<b>Internship location</b>
Pedagogical Training (stationary)	RUDN University, Moscow
Research activity aimed at preparing for a thesis defense (stationary)	RUDN University, Moscow; Third party organizations performing research and development, depending on the focus of the research

## **8. FEATURES OF EDUCATIONAL PROGRAMME IMPLEMENTATION**

The PhD program is implemented with elements of DET (based on the TUIS platform).

The language of implementation of the PhD program is English.

The program is *not adapted* for teaching the disabled and people with disabilities.