

# International Competence Centre for Mining Engineering Education under the auspices of UNESCO



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# ABOUT THE CENTRE



— 2018 —

THE AGREEMENT ABOUT ESTABLISHING OF THE CENTRE HAS BEEN SIGNED IN UNESCO HEADQUARTERS AND APPROVED BY THE PRESIDENT OF RUSSIAN FEDERATION

## MISSION OF THE CENTRE

TO PROMOTE THE DEVELOPMENT OF COMPETENCIES AND THE DISSEMINATION OF KNOWLEDGE AND TECHNOLOGIES IN THE FIELD OF MINERAL RESOURCES, ENERGY AND MINING ENGINEERING EDUCATION

TO ADVANCE BOTH AT THE NATIONAL AND INTERNATIONAL LEVELS THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT AS APPLIED TO THE MINERAL RESOURCE SECTOR, INCLUDING SUPPORT FOR UNESCO'S GLOBAL PRIORITIES, IN THE INTEREST OF GLOBAL SUSTAINABLE DEVELOPMENT





Centre was established on the basis of the **Empress Catherine II Saint Petersburg Mining University**, the first higher technical education institution in Russia, founded in 1773.

According to the results of the authoritative international ranking agency **QS World University Rankings (UK)**, **Saint Petersburg Mining University in 2023 ranked 3<sup>rd</sup> in the world in the subject Engineering - Mineral and Mining** and is among the TOP-20 best engineering and technical universities in the world, as well as one of the hundred best universities in Russia.

*Saint Petersburg Mining University is a scientific and educational centre of technical education, providing training in mining, oil and gas engineering, construction and architecture, electronics and nano electronics, mechanics, energy and materials science, metallurgy and chemical technologies, geology and geoecology, information technologies, economics and management for mineral and raw materials industries. Russia's first higher technical education institution has unique research and teaching traditions, the continuity of which is ensured through a multi-stage system of training and retraining of higher qualified specialists at the world level.*





# Our projects

The centre operates in accordance with the Strategy for Category 2 Institutes and Centres under the auspices of UNESCO (2019) and the medium-term Strategies (37 C/4) for 2014-2021 and (41 C/4) for 2022-2029



1

**Unified educational space**

**SDGS**  
4,8,10,17

2

**Professional accreditation of specialists and educators**

**SDGS**  
4,8,10,12,17

3

**Internationally significant event**

**SDGS**  
7,9,13,17

4

**Scientific and innovational research**

**SDGS**  
7,9,13,17

5

**Flagship universities and centers**

**SDGS**  
4,8,10,17

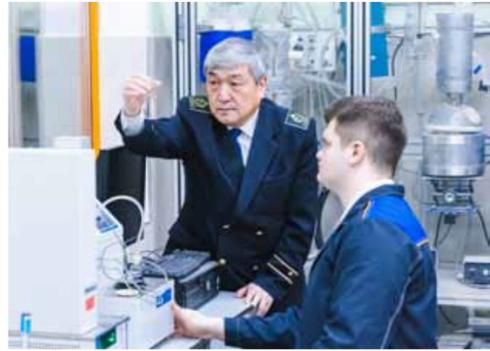
6

**Youth socium. Junior programs**

**SDGS**  
4,8,10,17



# Research & Innovation and Publishing Activities



The main scientific work is carried out in scientific centres based at the Saint Petersburg Mining University, which conduct research in priority scientific areas:

- The Scientific Centre "Arctic";**
- The Scientific Centre "Ecosystem";**
- The Scientific Centre for Geomechanics and Mining Problems;**
- The Scientific Centre for Mineral and Technogenic Resources Processing Problems;**
- The Research and Training Centre for Digital Technologies.**

**More than 1000 scientific papers** and **15 thematic collections** have been published with the Centre's participation, including 90 scientific papers on sustainable development.

**6 experts** of the Centre in 2022 were included in the **TOP-2%** of the most cited scientists in the world, compiled by Elsevier publishing house, **1 expert** in 2019 was included in the **TOP-1%** of the world's reviewers in the publons.com rating.



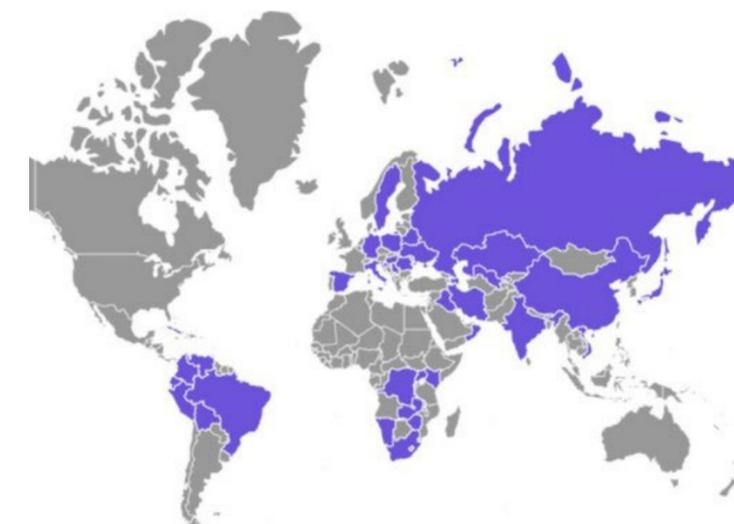
# Educational projects



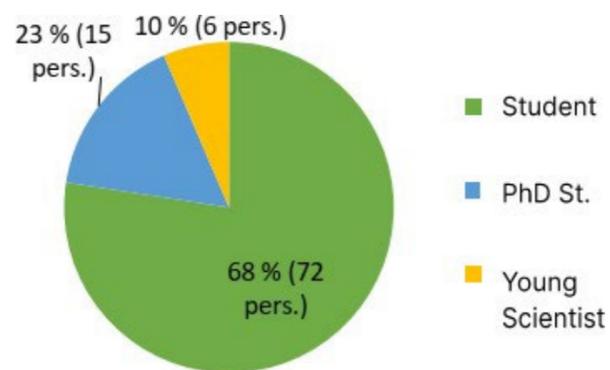
## Training of scientific and pedagogical personnel

## Short-term educational programmes

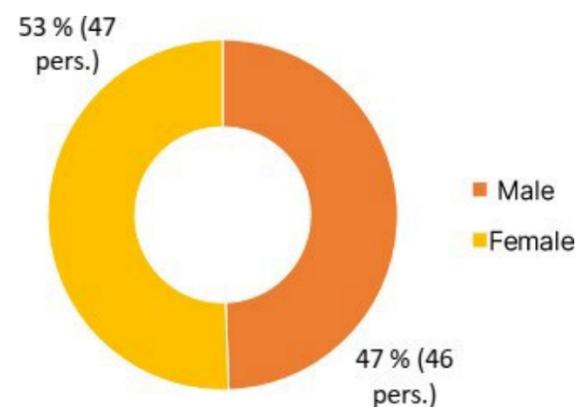
-  Inclusive training
-  Double Master's Diploma
-  Triple Master's Diploma
-  PhD Programmes



Participants by qualification



Gender distribution of participants



3660

Participants

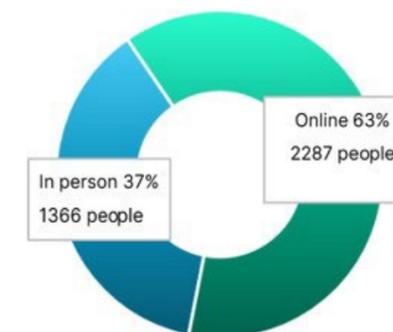
142

Programmes

43

Countries

Number of participants



Number of programmes



# Socially significant events



Within 5 years since foundation, the Centre has organised and held **more than 50 scientific and practical events, forums, competitions and olympiads** in the field of youth policy on the platforms of Russian and foreign partners: universities, companies, and research centres of various scales, formats and areas, in which **more than 30 000 people** took part in face-to face and remote formats.

The main events:

- **Russian-German Raw Materials Dialogue**, 2018-2021.
- **Russian-UK Raw Materials Dialogue**, 2018-2021.
- **EUROCK** International European Symposium on Geomechanics, 2018.
- **Youth Forum of Future Leaders** of the World Petroleum Council, 2019.
- Annual International Forum-Competition for Students and Young Scientists "**Topical Issues of Subsoil Use**", 2018-2023.
- International Forum "**Nature management and preservation of the World Natural Heritage**", 2022.
- International Congress "**Africa seeks solutions**", 2023, etc.



# Consortium of Universities "Nedra"

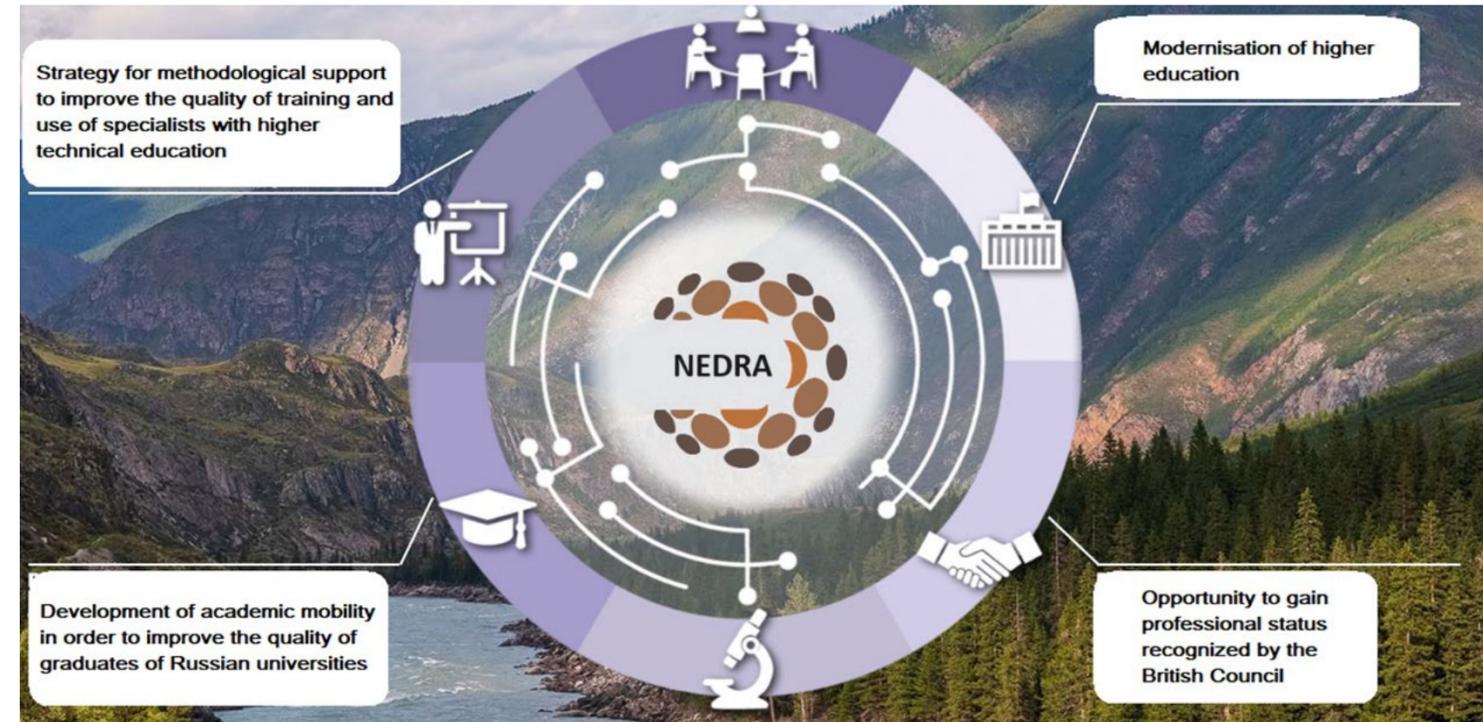


The Consortium of Universities "Nedra" was established **in 2020** in order to improve the level of adaptation of higher education institutions to the demands of the labour market and further integration of large core companies, public authorities and universities to form a unified scientific and educational environment.

The Consortium of Universities "Nedra" became the **first public association** of Russian universities, the creation of which was approved by the Order of the Minister of Science and Higher Education of the Russian Federation.

The Presidium of the Consortium consists of **14 leading higher education institutions** that are flagships in training specialists for the mineral resources sector.

The participants are more than **100 leading higher education institutions** with more than 10% of their curricula related to subsoil use.



# Improving the system of higher engineering education

Today national economies face the problem of **deficit of highly qualified engineering personnel** capable of creating and improving technologies, implementing and operating advanced technical and technological solutions.

Saint Petersburg Mining University with the Centre based on it, in cooperation with foreign partners and leading companies of the mineral and raw materials complex, **analysed the main trends in the development of higher education in the world** and based on modern requirements for its quality, **developed fundamental proposals for improving the system** of higher technical and vocational education.



**Significant changes to curricula and to the organization of the educational process have been proposed:**

- the concept of **"Core"** of higher engineering education was introduced, within the framework of which the fundamental knowledge and general technical training of students are formed.
- the period of **practical skills and experience** was increased from 26 to 44 weeks.
- the structure of educational programmes of **specialised higher education** was created.
- the terms of obtaining **practical skills and experience on the basis of production and mining enterprises** were increased.
- an **institute of supervising and mentoring** was created.
- a new approach to the **training of scientific and pedagogical personnel** was implemented.

CONTENT OF EDUCATIONAL MODULES OF DISCIPLINES			Number of units	Study period, year						
				1	2	3	4	5	6	
EDUCATIONAL MODULES	1. "Core" of higher engineering education	1.1. General education (7 disciplines)	32 credits	[Green bar spanning years 1-2]						
		1.2. General technical education (6 disciplines)	General engineering disciplines	48 credits	[Green bar spanning years 1-2]					
			Humanitarian disciplines		[Green bar spanning years 1-2]					
	Basic scientific competence (14 disciplines)			[Green bar spanning years 1-2]						
	2. Disciplines of the field of study and speciality	Basic disciplines of professional training	181 credits	[Yellow bar spanning years 2-4]						
		Disciplines by speciality		[Yellow bar spanning years 3-5]						
Additional professional competences		8		[Yellow bar spanning years 2-4]						
3. Disciplines of additional professional qualification (Certificate)			4	[Light blue bar spanning years 5-6]						
Including training and production skills, experience Including pre-graduate practice not less than 20 weeks			40 weeks	[Orange bars in each year column]						

# Consortium of Universities «Subsoil of Africa»

A prerequisite for Africa's emergence as a **future global centre of economic development** is the **sovereignty** of the countries of the African continent, which depends on establishing control over the extraction and processing of their own mineral resources. In its turn, the control and development of the mineral resources complex is possible only with full internal staffing of mining and processing industries, which directly depends on the **quality of the higher education system, primarily engineering education.**

Creation of the International Consortium of technical universities "Subsoil of AFRICA" will make it possible to increase the efficiency of training, first of all, of engineering personnel for the national economies of African countries



The letter of intent Formed the basis of the Agreement on the establishment of the Public-Professional Community Consortium of Universities «Subsoil of Africa», signed on 13 December 2023 by **Vladimir Litvinenko**-Chairman of the Governing Board of the Centre, and the Elected President of the Consortium - Rector of the Admiralty University of Nigeria, **Omaji Paul Omojo.**

To date, **more than 40 African countries** have already supported the idea of establishing the **Consortium of Universities «Subsoil of Africa»** and expressed interest in joining the community.



# PROBLEMS OF THE RAW MINERALS INDUSTRY

REDUCING RISKS, IMPROVING INDUSTRY SAFETY AND PROTECTING THE ENVIRONMENT ARE KEY ISSUES FOR MINERAL RESOURCE INDUSTRY

PRESSURE TO RESPOND TO THEM IS GROWING FROM STAKEHOLDERS GLOBALLY

## WHICH PROBLEMS CAN WE SEE?

There is no unified tool to determine the level of competencies for mineral resource engineers

Unified minimum threshold knowledge, skills and experience, taking into account their changes in the labor market have not been defined

The system of unified professional assessment of mineral resource engineers has not been developed

In order to create a unified system for assessing the level of personnel competence, the Centre established a **professional association "National Association of Mining Engineers"**, which received exclusive authority from the British Engineering Council along with the IOM3 Institute (UK) to conduct accreditation of specialists of mineral resource companies



# Proposals for collaboration

FORUM OF CATEGORY I, II NATURAL SCIENCE'S  
UNESCO CENTERS jointly with  
The World Federation of Engineering Organizations

## Engineering Forum at Saint-Petersburg

Main idea - development of a joint ideas and agenda for the development of engineering -as the basis for achievement of sustainable development goals



- Systematize and structurize the work of the Centres with the creation of an **open information platform** for the exchange of opinions;
- Create an **official catalog** presenting the activities of **all Centres in a single format**;
- Structure all centers by assigning an **identification number** to each.



- Preparation of part of the **UNESCO 2026 Report** in the context of issues in the field of mineral resources complex

# Thank you for attention

Connect with us.



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