RUDN
university

ACADEMY
OF ENGINEERING

INNOVATIVE TECHNOLOGIES IN SEARCH AND INVESTIGATION OF SOLID MINERALS

MASTER'S PROGRAMME DEGREE

PROGRAM ADVANTAGES

- The central agency by assessment and accreditation (ZEvA, Germany) recognized the program conforming to the international quality standards of education. Term of the international accreditation of 2019-2026.

- Seminars and master classes of the invited foreign experts of geologists are regularly held (the USA, the countries of Latin America, the country of Africa).

- Acquiring knowledge in the field of digital geology.

- Skills in 3D modeling of deposits based on specialized software: Micromine, Surpac.

- International shape of students' groups benefits by an international business-communications contacts just within university.

- Possibilities for the Russian and foreign students of practical training and receiving geological materials in PJSC Polyus, OJSC Polymetal, JSC Rosgeo, JSC Zarubezhgeologiya, in research organizations.

- A wide range of practical and research work on topical issues of geology, geophysics and geochemistry allows you to freely navigate and work in all industrial areas of geological exploration.

STUDYING PROCCESS

120 **educational credits.**

A two-year programme is designed to prepare specialists competent in in geology science evolution, state-of-the-art and its current issues, as well as in methodology and complex geological methods in research and strategy combined with the ability to solve scientific and applied problems., It equips students with advanced methods in planning and carrying out research, with data incorporating and compilating into a report, with data generalization and processing methods. The programme stimulates student's initiatives based on advancing their knowledge in R&D, skills in applied and pedagogical fields.

MATHEMATICAL MODELING OF GEOLOGICAL TASKS

- General information about mathematical modeling of geological objects.
- One-dimensional geological model and its application in geology.
- Two-dimensional geological model and its application in geology.
- Multidimensional geological model and its application in geology.
- Mathematical simulation of spatial geological regularities.

INTEGRATION OF GEOPHYSICAL METHODS FOR SEARCH OF MINERAL DEPOSITS

- Complex analysis and complex interpretation of geophysical data.
- Physio-geological simulation.
- Integration of geophysical methods in terms of search and investigation of ore and sedimentary fields.
- Integration of geophysical methods in terms of search and investigation of coalfields and combustible slates, uranium, diamondiferous kimberlites.

3D MODELING OF MINERAL DEPOSITS

- Basic principles of 3D simulation and solid minerals stock assessment.
- Comparison with traditional methods.
- Review of the modern software.
- Basic data, their reporting, storage and display in the 3D programs of modeling.
- Ore deposits frame simulation.
- The block simulation of ore deposits and ore stocks calculation Open-working, planning.

INNOVATIVE METHODS OF REMOTE RESEARCH IN GEOLOGY

- Physical principles of the Earth remote sensing.
- Methods of shooting and data of remote sensing of the Earth.
- Data simulation of remote sensing of the Earth.
- Technologies of data decryption of remote sensing of the Earth and complex interpretation of its results with use of geological, geophysical, geochemical and landscape materials.

STUDENTS FEEDBACK

👤 LUCIEN TOURE, GUINEA

" I graduated the master program "Innovative Technologies in Search and Investigation of Solid Minerals" in 2018 ". All subject matters were interesting, the teachers gave their classes at a very high level, the material was very interesting and informative. Due to some circumstances it was forced to study according to the individual schedule. But despite this, the quality of the knowledge I gained was the same, as that of the regular schedule. The teachers actively helped to master the majors and additional material. I would also like to stress a high professional level of teaching in the modern geological software, which allowed me to write and successfully defend my master's thesis. I actively use the knowledge I gained in my work as a geologist. I am the project manager in the GEOPROSPECTS Ltd. company. (Republic Guinea). "

👤 ANASTASIA ALEKSEEVNA PORFIRYEVA, RUSSIA

" The geologist of the First class honors', Job training department FGU Rosgeolfond (Moscow).
The university education was full of interesting, useful and important events. The classes were challenging and fascinating. Communication with my research supervisor in terms of the scientific research was remarkable and helpful. There was a possibility of individual schedule. The modern simulation approach allowed to gain good results in scientific research and report successfully at the conferencethe resultd of which were published in scientific papers, and included in me madter's thesis. Practice allowed to receive many skills and experience of research work at real manufacturing enterprise. "

HEAD
OF THE PROGRAMME

ALEXANDER EVGENYEVICH KOTELNIKOV

Candidate of geological and mineralogical sciences, associate professor, director of the department of subsurface use and oil and gas engineering at the RUDN Academy of Engineering.

AREAS OF SCIENTIFIC INTERESTS:

structural conditions of endogenous mineralization containment in paleo volcanic constructions; search of endogenous mineralization based on paleo volcanic reconstruction and geochemical methods.

The expert AEER (Association of Engineering Education of Russia) and AKKOPK (Agency on quality control of education and development of career) - independent education quality assessment.

Research work: The author of scientific papers in the reviewed Russian and foreign scientific magazines (SCOPUS, Web of Science, VAK), regularly makes reports at the international conferences in the field of geosciences. The executive manager of four contract-based works, the executive of one state-financed project and one government contract. He is completing his Ph.D. dissertation, thesis for Ph.D. Degree in Innovative methods of minerals researching.