

09.04.02
INFORMATION TECHNOLOGIES IN GEOLOGY

DURATION:

2 YEARS

MODE OF STUDY:

FULL-TIME

LANGUAGE OF INSTRUCTION:

ENGLISH

AREAS OF STUDY:

**EARTH SCIENCES, INFORMATION
TECHNOLOGIES, ENGINEERING STUDIES**

ENTRANCE EXAMINATION:

**COMPUTER SCIENCE OR GEOSCIENCES - TEST
AND INTERVIEW**



CENTRAL ADMISSION OFFICE

8-(3952)-405-405
8-800-100-54-05



83, Lermontov Street, Irkutsk, Russia, 664074



cpk@istu.edu - Central Admissions Office
www.istu.edu

ABOUT PROGRAM

The program aims to develop a full range of knowledge in the field of "smart digital geology" - from understanding the evolution of the Earth and practical skills in geological prospecting to the development of digital equipment and the use of geographic information systems and AI to process large geodata. There will be no significant "black spots" in modern applied earth sciences for graduates.

CURRICULUM:

Fundamentals of
Geology

Programming for
data analysis

Methods of geological prospecting
(geochemical, geophysical)

Geographic information
systems

Electronics and Robotics
in Geosciences

Selected chapters of mathematics and geostatistics

Mineral Deposits

Geometrization of subsoil
and mining GIS

Earth remote sensing, unmanned systems and
photogrammetry. Additive technologies



iPolytech



INFORMATION TECHNOLOGIES IN GEOLOGY

MASTER`S PROGRAM 2022/2023
SIBERIAN SCHOOL OF GEOSCIENCES

www.istu.edu

PROGRAM DIRECTOR

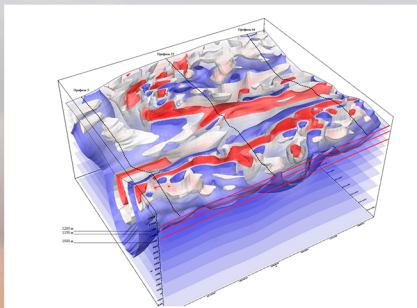
Alexander Parshin

Candidate of geological and mineralogical sciences, professor

Scientific Director of the Siberian School of Geosciences

Scientific interests: geoinformation technologies in geological exploration in the broadest sense - from the hardware of collection systems to mineral prospectivity mapping using AI; environmental-geochemical research; robotic systems in Earth Sciences.

Author of more than 70 scientific publications (of which more than 20 are in WoS/Scopus), 14 patents and intellectual property certificates, co-author more than 30 production reports, including those that containing reserves calculation.



PROGRAM BENEFITS:

- Everyone who has any engineering or Earth Science education can apply for this program. What matters is their desire to intensively acquire universal competencies in the field of "digital geosciences".
- If undergraduates have good study results, we guarantee them the scientific and industrial work in the Siberian School of Geosciences during their studies, gaining experience and earnings.
- Educational practice takes place at the unique geological test site Chernorud near the Lake Baikal - a UNESCO World Heritage Site.
- The program is a unique combination of Engineering, IT and Geosciences with the result that students spend time both in research labs and outdoors.
- The study cases students are working on are very knowledge-intensive, and therefore they allow them to participate in competitions for rating scholarships and grants, and in scientific conferences.
- The program is based on an individual approach to each student - in the formats of workshop and project activities.

SKILLS



Basic knowledge in geosciences, sufficient for independent practical activities.



Practical skills in the creation and application of unmanned air and water systems in geosciences



Programming in high-level languages

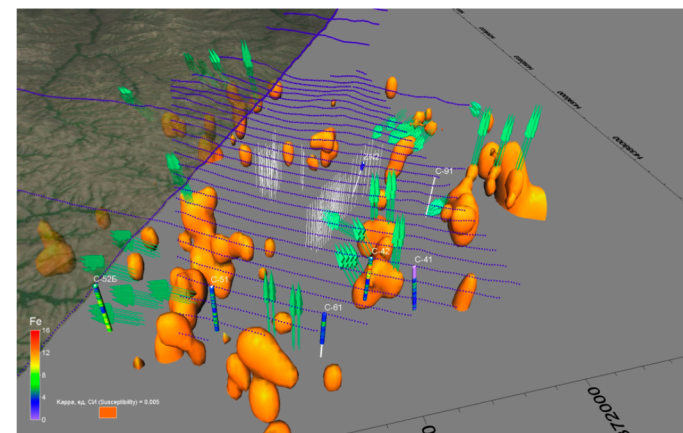


Additive technologies



The basics of creating electronic equipment and robotic systems

The field of GIS technologies in the geological industry is interesting, modern, containing many unsolved problems and, importantly, provided with the financial resource. This makes the graduates of the master's program "IT in Geology" in demand at the mining and geological industry and in the academic sector in positions such as: GIS Engineer, Data Processing Specialist, Geological Team Leader, Operator of UAV for ERS, Geoscientist.



Geographic information systems - universal (QGIS, ArcGIS, MapInfo) and mining (Micromine, Oasis Montaj)



Theory and practice of geological prospecting



Mathematical and geostatistical data analysis



Fundamentals of Machine Learning



3D modeling of the geological environment