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| **Major subject, course code** | **05.03.03 Cartography and Geoinformatics (based on CCS)**  ***Specialization*: Cartography and Geoinformatics** |
| Educational form | Full-time |
| Term of education | 4 years |
| Acquired qualification | Bachelor’s Degree |
| The area of professional activity | The area of professional activity includes research, design, production and pedagogical work related to cartography, GIS mapping, surveying, and aerospace sensing of the earth's surface. |
| The most important professional competence areas | - possess basic knowledge of the fundamental branches of mathematics to the extent necessary for the ownership of mathematical geography and cartography, information processing and analysis of geographic and cartographic data;  - possess basic knowledge in the field of Informatics, geoinformatics and modern geoinformation technologies: has the skills to use software tools and work in computer networks, to be able to create databases and use Internet resources to use GIS technology;  - possess basic knowledge of the fundamental topics of physics, chemistry, ecology to the extent necessary for the development of the physical, chemical and biological basics in general, physical and economic geography;  - general skills: master basic professional theoretical knowledge of the geographical envelope, about the theoretical foundations of geography, geomorphology, meteorology and climatology, hydrology, biogeography, geography of soils with the basics of soil science, landscape study, topography);  - to know the theoretical foundations of social and economic geography, geography of population and demography, the concept of the territorial organization of society;  - know the basics of cartography, owns cartographic and aerospace methods in geographic research;  - be able to use in social activity, cognitive and professional skills of work with computer, own modern geo-information and telecommunications technologies are making maps, software products in the field of cartography, Geoinformatics and processing of aerospace images;  - to know means global positioning;  - the ability to use the skills of surveying and mapping instruments and publishing equipment in professional activity;  - be able to use the skills of working with information from various sources for the professional and social challenges, able to understand, explain and critically analyze the basic information in geography and cartography, has the ability to use theoretical knowledge in practice;  - to have a competence in the field of cartography: to own professionally profiled knowledge, skills and abilities in the field of the fundamental topics of General and physical geography;  - to own professionally profiled knowledge in the field of theoretical and practical cartography and geoinformatics;  - to know the methods of compiling, editing, preparing for publication of general geographic and thematic maps and atlases in traditional analog and digital forms, to be able to create new types of cards;  - to know the methods and technologies of spatial geographic processing, including aerospace information, apply cartographic methods of cognition in scientific and practical activity, know the system of field and laboratory methods of research and modeling and cartography;  - possess basic knowledge in the field of Informatics, computer technology and multimedia technology, software tools, working methods in computer networks, able to create databases and use the Internet resources for the purpose of mapping, obtaining and processing images; owns assets global positioning;  - good command of technologies in the field of aerospace research methods in geography, geoecology, general reference and thematic mapping;  - be able to make General geographic and thematic maps, atlases and other cartographic products using GIS and publishing technologies;  - be able to design and develop computer design cards of different types;  - be able to edit maps on the stages of designing, creating and publishing maps;  - possess competence in the field of "Geoinformatics": to be able to create a system of digital Earth, countries, cities, wilderness and protected areas;  - to know the interface of geographic information systems (GIS), models, data formats, input spatial data and organizing queries in GIS;  - know the methods of mathematical and statistical modeling, automated interpretation, automated classification and computer technology of preparation of maps for publication;  - be able to collect spatial data using satellite positioning systems;  - know technology Internet mapping and be able to develop a system of geotelecommunication;  - good command of aerospace methods of mapping and modeling based on computer technologies of processing of a new type (ultra-high resolution, thermal, radar), as well as methods of computer-and three-dimensional stereo measurement aerospace simulation;  - be able to create geographic databases;  - be able to create cartographic design in GIS packages. |
| Employment options of graduates | Potential places of employment of graduates are:  - Department of public service, departments of cities and districts administrations.  - Organizations and departments of geological and environmental profile.  - Large industrial and commercial enterprises.  - Consulting firm.  - Research, design and survey institutes, bureaus, firms of different ownership forms on creating problem-oriented GIS.  - Institutions and organizations, carrying out the state cadastral mapping, maintenance of inventories at all levels, appointments.  - Engineering-geodetic and cartographic service.  Construction and transport organizations, companies and enterprises.  - Architectural planning, urban planning management.  - Hydrometeorological system, timber, and other services.  - Sphere of education. Teaching in secondary and higher educational institutions. |
| Entrance examination | Full time education – the results of RNE(Russian National Exam):  Mathematics  Russian language  Geography |