# ADDITIONAL EDUCATIONAL PROGRAM (MINOR)
## «GEOINFORMATION SYSTEM »

**For whom it is intended: Program (Minor)** The program (Minor) "Geoinformation systems" is intended for students of all educational programs.

**Relevance:** It is based on the theoretical foundations, principles of functioning and methods of application of geoinformation systems (GIS). GIS is used to collect, store, manage and analyze data, compile and print maps. It is intended for mastering GIS system software and their practical application in solving various tasks.

**Justification:** The main directions of development of geoinformation systems, geoinformation resources and technologies, methodological foundations of modern geoinformation systems, comparison of advantages and disadvantages of GIS and assessment of the level of their use, methods for evaluating the effectiveness of automated geoinformation systems are considered.

**Purpose:** Formation of ideas about geoinformation systems; mastering the principles and structure of GIS organization, methods of processing geographical data; teach students to apply theoretical and practical skills in solving applied problems using GIS tools.

**Program Description:**

1. The program (Minor) «Geoinformation systems» consists of 3 disciplines, each discipline has 5 credits, in total the student must master 15 credits.
2. The program (Minor) «Geoinformation systems» does not require pre-requisites.
3. The number of credits for obtaining a bachelor's degree remains unchanged at least 240 credits.

**Program content:**

| Name of the discipline | Description of the discipline | Teaching outcomes |
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| Fundamentals of geoinformatics | Discipline is aimed at studying the functionality of geographical information systems (GIS), data organization in GIS, data analysis methods in GIS, features of selection, preparation and input of geometric and thematic information, methods for obtaining, processing and using remote sensing data. | LO1- explain modern GIS technologies in the preparation of electronic maps<br>LO2-explanation of GIS technology operation;<br>LO3-own and apply GIS tools in practice |
| Design and Drawing up Maps | The course studies the processes of making original maps, cartographic methods of image; methods and methods of drawing and designing maps; the basics of computer literacy and design; methods of geoinformation and traditional mapping; database design; creating thematic maps | LO1-use of various methods in the compilation of maps, atlases;<br>LO2-use of basic and auxiliary elements in the manufacture of cartographic products<br>LO3-assessment of the quality of cartographic products; |

| GIS in Geographical Research | The discipline examines the activity of geographical information systems in geographical research, the main ideas, principles and methods of GIS application in earth sciences. In addition, it is aimed at evaluating the effectiveness of GIS in solving geographical problems. | LO1-application of GIS technologies for forecasting geographical processes; LO2-know the features and effectiveness of geoinformation systems; LO3-to assess the importance of geoinformation systems in the scientific and economic spheres. |
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