

**PROFILE OF PROFESSIONAL EDUCATION PROGRAM**  
**“GEOINFORMATION SYSTEMS AND TECHNOLOGIES” SPECIALTIES 193**  
**“GEODESY AND LAND MANAGEMENT”**

<b>Common information</b>	
<b>Full name of higher educational institution and structural unit</b>	National Aerospace University named after. M. Ye. Zhukovsky "Kharkiv Aviation Institute" Department of geoinformation technologies and space monitoring of the Earth
<b>Higher educational level</b>	First (bachelor`s) level
<b>Grade of higher education</b>	Bachelor
<b>Name of qualification in the language of the original</b>	Бакалавр з геодезії та землеустрою за освітньою програмою «Геоінформаційні системи і технології»
<b>Official name of professional-education program</b>	Geodesy and land management. Geoinformational Systems and Technologies
<b>Type of diploma and the volume of the educational-professional program</b>	Bachelor's degree, unitary, 240 ECTS credits, term of training 3 years 10 months
<b>Presence of accreditation</b>	Certificate of Accreditation: Seria ND-II I number 2143144, visions 08/12/2010 p. on the instructions of the Ministry of Education and Science of Ukraine dated 07/07/2008 №2180-L
<b>Prerequisites</b>	A person has the right to obtain a bachelor's degree provided that he has completed secondary education
<b>Language(s) teaching</b>	The language of teaching is the state language. In order to create conditions for international academic mobility, a decision may be made to teach one or more disciplines in English and / or other foreign languages, while ensuring knowledge of the relevant discipline in the state language.
<b>The term of the educational-professional program</b>	Before putting into operation a new educational program
<b>Internet address of the permanent placement of the description of the educational-professional program</b>	<a href="http://khai-gis.info/abit.html">http://khai-gis.info/abit.html</a>
<b>The purpose of the educational program</b>	
Training of highly skilled specialists (bachelors) in the field of geoinformation technologies, the competence of which corresponds to modern requirements of employers and the prospect of work in the labor market.	
<b>Characteristics of the professional-education program</b>	
<b>Subject area</b>	Objects of study: theoretical bases, methods, technologies and equipment for the collection and analysis of geospatial data on the shape and size of the Earth, its mapping and plans, the provision of engineering structures

	<p>(including underground) and the study of geospatial links between objects and structures.</p> <p>Targets of teaching: formation of the ability of graduates to solve complex specialized tasks and practical problems in the process of professional activity or training, which involves the application of theoretical knowledge in geodesy and land management and technology and equipment in the field of topographic and geodetic production in order to obtain and analyze geospatial data.</p> <p>Theoretical content of the subject area: knowledge of the form and size of the Earth, concepts and principles of conducting topographic and geodetic activities and land cadastre, as well as their information support. Basic knowledge of the natural sciences and in-depth knowledge of mathematics and information technology.</p> <p>Methods and technologies: field, cameral and remote methods of research, methods of collecting and processing geospatial data, geoinformation technologies, field and camera technology in the field of geodesy and land management.</p> <p>Instruments and equipment: geodetic, navigational, aerospace equipment, photogrammetric and cartographic systems and complexes, specialized geoinformation, geodetic and photogrammetric software for the solution of applied tasks in geodesy and land management.</p>
<b>Directing of the educational-professional program</b>	Educational and professional program for training of bachelors
<b>The main focus of the educational-professional program (specialty)</b>	Modern models, methods, algorithms, technologies, processes and methods for obtaining, storing, processing, analyzing and presenting geodata on the basis of system methodology in order to solve complex specialized problems and practical problems in geodesy and land management from professional activities or in the process of training.
<b>Program features</b>	Students have a practice on different enterprises in various fields of national economy
<b>Eligibility of graduates for employment and further education</b>	
<b>Suitability for employment</b>	<p>Professional activity as a specialist in geoinformation systems and technologies in geodesy and land management. Graduates can work in professions according to the National Occupational Classifier 003:2010:</p> <p>3417 - appraiser (expert valuation of property),  appraiser-expert;  3214-technician-land surveyor, technician-cartographer;  3121 - technician-programmer (geo-task);  3118 - technician-topographer, technician-topographer cadastral;  3123 - technician-photogrammetrist.</p>
<b>Further education</b>	Continuation of training under the second training program (magistracy) level of higher education.
<b>Teaching and evaluation</b>	
<b>Teaching and education</b>	Student-centered learning, self-study, problem orientation training is aimed at developing critical and creative thinking, teaching through laboratory practice, dual, distance education, etc. Lectures, multimedia lectures, laboratory works, seminars, practical classes in small groups, independent work on the basis of textbooks and notes, consultations with

	teachers, preparation of baccalaureate work.
<b>Evaluation</b>	Written exams, practice reports, presentations, current (module) control, bachelor's work and its protection.
<b>Academical mobility</b>	
<b>National Credit Mobility</b>	On the basis of bilateral agreements between the National Aerospace University named after. M.E. Zhukovsky "Kharkiv Aviation Institute" and technical institutions of Ukraine. State Enterprise "Antonov" (Contract No. 1/11 dated March 25, 2016, the term of validity is 3 years).
<b>International Credit Mobility</b>	On the basis of bilateral agreements between the National Aerospace University named after. M.Ya. Zhukovsky "Kharkiv Aviation Institute" and educational institutions of partner countries. ERASMUS +, namely academic mobility from the University of the Basque Country and the Ecole Centrale de Nantes.
<b>Teaching foreign applicants for higher education</b>	Training of foreign citizens is provided in the state language or in English. If the training is conducted in the state language, then in certain cases it may be decided to teach one or several disciplines in English and / or other foreign languages, while providing knowledge of the students of the relevant discipline in the state language.

**THE STRUCTURE OF THE CURRICULUM FOR THE SEMESTERS AND THE CONTENT  
OF THE COMPONENTS OF THE STUDY PROGRAM**

<b>№</b>	<b>Name of the component</b>	<b>Aim and task of the component</b>
<b>I Semester</b>		
1	Foreign Language	<p><b>Aim:</b> to acquire knowledge of a foreign language for the study of disciplines of a specialty in a foreign language.</p> <p><b>Task:</b> to study the main terms of the specialty with the help of a foreign language.</p>
2	Algorithmic foundations of geomatics and systemology	<p><b>Aim:</b> to improve the basic knowledge of computer science received by students in the previous educational institutions, to provide new knowledge about methods and technologies for developing algorithms of computing processes and their implementation by means of modern object-oriented programming languages of a high level, as well as studying the conceptual foundations of systemology.</p> <p><b>Task:</b> the implantation of knowledge on the basis of systemology, the skills of developing algorithms of computing processes and their implementation by means of high-level programming languages.</p>
3	Higher Mathematics	<p><b>Aim:</b> deep knowledge of the basic methods of higher mathematics, which will provide the logic of mathematical thinking students.</p> <p><b>Task:</b> studying the basic methods of higher mathematics for further use in disciplines associated with mathematical models and optimization methods.</p>
4	Geology and Geomorphology	<p><b>Aim:</b> to study the main forms and laws of the development of relief on the conditions of their formation, as well as physico-geological processes occurring on the surface of the Earth and the methodology of geological and geomorphological studies.</p> <p><b>Task:</b> the study of geological processes, the composition of the earth's crust, the history of its development to determine the genetic type of relief, its age and prediction of neotectonics.</p>
5	Geodesy	<p><b>Aim:</b> acquisition of basic knowledge about modern methods of geodetic measurements, technologies and means, as</p>

		<p>well as algorithms for their processing, processes and decisions, carried out in research, design, construction and operation of engineering structures.</p> <p><b>Task:</b> to study the methods of obtaining geodata using geodetic instruments and processing of spatial data under the control of geographic information systems.</p>
6	Physics	<p><b>Aim:</b> deep knowledge of the basic laws of physics, which ensure the correct setting of the tasks of control and management of physical signs.</p> <p><b>Task:</b> to study the basic laws, methods and models for further use in disciplines of the specialty.</p>
II Semester		
7	Foreign language	<p><b>Aim:</b> to acquire knowledge of a foreign language for the study of disciplines of a specialty in a foreign language.</p> <p><b>Task:</b> to study the main terms of the specialty with the help of a foreign language.</p>
8	History of Ukraine	<p><b>Aim:</b> studying the history and culture of Ukraine. Ukraine's place in the development of world culture.</p> <p><b>Task:</b> To teach students to use historical facts in professional activities as well as in society.</p>
9	Ukrainian language (professional direction)	<p><b>Aim:</b> to teach students to communicate in the state language in professional activities, as well as in society.</p> <p><b>Task:</b> to study the main terms of the specialty in the state language for use in professional activities.</p>
10	Higher Mathematics	<p><b>Aim:</b> deep knowledge of the basic methods of higher mathematics, which will provide the logic of mathematical thinking students.</p> <p><b>Task:</b> studying the basic methods of higher mathematics for further use in disciplines associated with mathematical models and optimization methods.</p>
11	Algorithmic foundations of geomatics and systemology	<p><b>Aim:</b> to improve the basic knowledge of computer science received by students in the previous educational institutions, to provide new knowledge about methods and technologies for developing</p>

		<p>algorithms of computing processes and their implementation by means of modern object-oriented programming languages of a high level, as well as studying the conceptual foundations of systemology.</p> <p><b>Task:</b> the implantation of knowledge on the basis of systemology, the skills of developing algorithms of computing processes and their implementation by means of high-level programming languages.</p>
12	Geodesy	<p><b>Aim:</b> acquisition of basic knowledge about modern methods of geodetic measurements, technologies and means, as well as algorithms for their processing, processes and decisions, carried out in research, design, construction and operation of engineering structures.</p> <p><b>Task:</b> to study the methods of obtaining geodata using geodetic instruments and processing of spatial data under the control of geographic information systems.</p>
13	Land law	<p><b>Aim:</b> to teach students to apply the norms of laws and by-laws in the process of regulating land relations when privatizing land by citizens and legal entities, granting land plots for rent, determining the size of land tax, establishing restrictions and encumbrances on land, protecting land rights, resolving land disputes, sales of land plots at land auctions, etc.</p> <p><b>Task:</b> the study of the process of legal and procedural implementation of land management, cadastre and land valuation.</p>
14	Educational practice	<p><b>Aim:</b> to use knowledge of geodesy and land management in the practice of surveying and navigating measurements.</p> <p><b>Task:</b> to acquire skills and abilities during geodetic and navigational measurements for geodesy and land management tasks.</p>
III Semester		
15	Philosophy	<p><b>Aim:</b> to reveal the fundamental principles of philosophy for creative thinking of students in the socio-economic environment.</p> <p><b>Task:</b> To show students the use of the basics of philosophy for dialectical thinking in the real world.</p>
16	Foreign language (professional direction)	<p><b>Aim:</b> To provide basic knowledge and skills for oral and written communication</p>

		<p>in a foreign language in the field of geographic information systems and technologies.</p> <p><b>Task:</b> acquisition of students the necessary knowledge, skills and abilities for communication in the foreign language of the engineering direction, to be able to explain and characterize the facts and phenomena in a foreign language, to establish cause-and-effect relationships between the facts and phenomena; To be able to speak competently in oral and written form.</p>
17	Probability Theory and Mathematical Statistics	<p><b>Aim:</b> deep knowledge of probability theory and mathematical statistics, which will provide the logic of mathematical thinking students.</p> <p><b>Task:</b> to study the basic methods of mathematical statistics for further use in disciplines related to mathematical models and optimization methods.</p>
18	Gheodesy (Course project)	<p><b>Aim:</b> acquisition of basic knowledge about modern methods of geodetic measurements, technologies and means, as well as algorithms for their processing, processes and solutions, carried out in research, design, construction and operation of engineering structures.</p> <p><b>Task:</b> to study the methods of obtaining geodata using geodetic instruments and processing of spatial data under the control of geographic information systems.</p>
19	Mathematical methods and models	<p><b>Aim:</b> to provide basic knowledge about the methods of constructing mathematical models for automation of the process of data monitoring for their use in geoinformation systems.</p> <p><b>Task:</b> the study of the peculiarities of mathematical models, criteria of their choice, depending on the accuracy and methods of their construction of the features of the shooting apparatus and their interconnection with the specifics of monitoring objects, the features of construction of GIS for regional and local types of monitoring on maps of different sizes -by the features of processing images data in specialized GIS.</p>

20	Photogrammetry and remote sensing	<p><b>Aim:</b> acquisition of basic knowledge of modern methods of remote sensing of the Earth's surface from space for students to obtain information on the state and levels of man-caused loading on the main components of the environment: water, land, forest resources; the atmosphere., and the acquisition of skills in the processing of images taken from the air.</p> <p><b>Task:</b> the study of methods for determining the coordinates of objects in the image obtained as a result of aerial photography, methods of obtaining images using aircraft, methods for analysis and evaluation of the current state of the main environmental components.</p>
21	Satellite Geodesy	<p><b>Aim:</b> acquisition by students of basic knowledge about the classification of satellites and their means of observation and modern methods for determining the flight path of space objects under a perturbed and unconstrained movement. "</p> <p><b>Task:</b> the study of methods for solving dynamic and geometric problems and differential equations of undisturbed and perturbed motion.</p>
IV Semester		
22	Foreign language (professional direction)	<p><b>Aim:</b> To provide basic knowledge and skills for oral and written communication in a foreign language in the field of geographic information systems and technologies.</p> <p><b>Task:</b> acquisition of students the necessary knowledge, skills and abilities for communication in the foreign language of the engineering direction, to be able to explain and characterize the facts and phenomena in a foreign language, to establish cause-and-effect relationships between the facts and phenomena; To be able to speak competently in oral and written form.</p>
23	Higher Geodesy	<p><b>Aim:</b> students acquire basic knowledge about the methods of precise measurements, which are carried out to determine the coordinates of the points of the earth, and the processing of these measurements, taking into account the corrections for the transition from the</p>



		<p>physical earth's surface to the surface of the ellipsoid and the plane.</p> <p><b>Task:</b> to study the relations on the surface of the earth ellipsoid and methods of solving the main geodetic problems taking into account the features of the gravitational field of the Earth.</p>
24	Mathematical processing of geodesical measurements	<p><b>Aim:</b> to provide basic knowledge about the processing of geodetic measurements and assess the accuracy of these measurements.</p> <p><b>Task:</b> to study the main methods of processing the results of geodetic measurements, sources of errors and methods for their correction and prevention.</p>
25	Study practice	<p><b>Aim:</b> to use knowledge of geodesy and land management in the practice of surveying and navigating measurements.</p> <p><b>Task:</b> to acquire skills and abilities during geodetic and navigational measurements for geodesy and land management tasks.</p>
26	Computer technologies for GIS applications	<p><b>Aim:</b> to provide basic knowledge that will help students when working with information technology in the analysis of information systems, during the design and development of software systems, etc. Acquiring practical skills in the basics of programming and calculation of information system parameters.</p> <p><b>Task:</b> students learn and master the basic principles and rules of construction, organization of modern information and computer technologies, their characteristics, rules of interaction</p>
27	Digital image processing	<p><b>Aim:</b> to obtain basic knowledge about methods and technologies of digital processing of aerospace images. Acquire practical skills in the acquisition, processing and recognition of digital aerospace images.</p> <p><b>Task:</b> : to study the methods of thematic processing of aerospace images for visual and automated decryption.</p>
28	Photogrammetry and remote sensing (Course project)	<p><b>Aim:</b> acquisition of basic knowledge of modern methods of remote sensing of the Earth's surface from space for students to obtain information on the state and levels of man-caused loading on the main components of the environment: water, land, forest resources; the atmosphere., and the acquisition of skills in the</p>

		processing of images taken from the air. <b>Task:</b> the study of methods for determining the coordinates of objects in the image obtained as a result of aerial photography, methods for obtaining images using aircraft, methods for analysis and evaluation of the current state of the main components of the environment.
29	Cartography	<b>Aim:</b> to provide basic knowledge about methods of collecting map information, drawing up and publishing maps. To acquire practical skills in automated methods. <b>Task:</b> creation and editing of maps, studying methods for creating different types of maps, their properties and methods of map analysis.
V semester		
30	Foreign language (professional direction)	<b>Aim:</b> To provide basic knowledge and skills for oral and written communication in a foreign language in the field of geographic information systems and technologies. <b>Task:</b> acquisition of students the necessary knowledge, skills and abilities for communication in the foreign language of the engineering direction, to be able to explain and characterize the facts and phenomena in a foreign language, to establish cause-and-effect relationships between the facts and phenomena; To be able to speak competently in oral and written form.
31	Digital Image processing (Course project)	<b>Aim:</b> To provide basic knowledge about methods and technologies of digital processing of aerospace images. Acquire practical skills in the acquisition, processing and recognition of digital aerospace images. <b>Task:</b> to study the methods of thematic processing of aerospace images for visual and automated decryption.
32	Technologies of GIS	<b>Aim:</b> to give basic knowledge about modern methods and technologies of geoinformation systems. Acquired practical skills of working with hardware and software GIS. <b>Task:</b> the study of methods and technologies for the input, processing,

		storage and visualization of spatial data using geographic information systems.
33	Geographic information systems and databases	<p><b>Aim:</b> to provide basic knowledge about modern methods and models of functioning of geographic information systems, to bring practical skills to work with hardware and software GIS and databases.</p> <p><b>Task:</b> to study the methods of processing spatial data under the control of various types of databases in the structure of geographic information systems.</p>
34	Metrology and standardization of geodata	<p><b>Aim:</b> formation of knowledge, skills and knowledge in metrology, standardization of geodata, necessary for solving specific engineering and scientific and technical tasks during geodetic works in order to ensure their quality and reliability.</p> <p><b>Task:</b> to form students practical skills in the rational organization of the measuring process, ensuring the reliability of its results, achieved by a set of tools and organizational and technical measures at the state, industry levels and at the enterprise level, which allow to support the means of measuring equipment in the constant readiness to carry out measurements with a given precision</p>
35	Protection of spatially-distributed data in computer systems	<p><b>Aim:</b> to provide basic knowledge about sources of information leakage and modern methods of protection of spatially distributed data in computer systems, the implantation of practical skills in creating systems for protecting spatially distributed data in computer systems.</p> <p><b>Task:</b> the study of methods for protecting spatially-distributed data in computer systems.</p>
36	Fundamentals of land management and cadastre	<p><b>Aim:</b> to provide basic knowledge about land management and land cadastre, as well as about the types of works used in the development of a land plot project, for the conclusion of land lease agreements and land ownership registration.</p> <p><b>Task:</b> the study of modern methods of organization and order of land management and state land cadastre, the creation of land management documentation and methods of automation</p>

		of land cadastral works.
VI Semester		
37	Humanitarian discipline at the student's choice	<p><b>Aim:</b> Providing students with knowledge on the theory of conflictology for decision making in a team work environment.</p> <p><b>Task:</b> to study the methods of behavior in teams when implementing projects for the creation of information systems.</p>
38	Foreign language (professional direction)	<p><b>Aim:</b> to provide basic knowledge and skills for oral and written communication in a foreign language in the field of geographic information systems and technologies.</p> <p><b>Task:</b> acquisition of students the necessary knowledge, skills and abilities for communication in the foreign language of the engineering direction, to be able to explain and characterize the facts and phenomena in a foreign language, to establish cause-and-effect relationships between the facts and phenomena; To be able to speak competently in oral and written form.</p>
39	Technologies of GIS (Course project)	<p><b>Aim:</b> to give basic knowledge about modern methods and technologies of geoinformation systems. Acquired practical skills of working with hardware and software GIS.</p> <p><b>Task:</b> the study of methods and technologies for the input, processing, storage and visualization of spatial data using geographic information systems.</p>
40	GPS-technologies	<p><b>Aim:</b> to provide basic knowledge about methods and technologies for determining the coordinates of fixed and moving objects with different degrees of error of their measurement for solving applied tasks of geodesy and land management.</p> <p><b>Task:</b> to study methods and technologies for working with data obtained using GPS equipment.</p>
41	Internship	<p><b>Aim:</b> to use knowledge of geodesy and land management in the practice of surveying and navigating measurements.</p> <p><b>Task:</b> to acquire skills and abilities during geodetic and navigational measurements for geodesy and land management tasks.</p>
42	Programming of applied GIS-tasks	<p><b>Aim:</b> to give basic knowledge about data modeling methods in geographic</p>

		<p>information systems, which will help acquired practical skills in working with modern GIS software, but also understand how a particular operation is being performed inside the system, and will help in designing its own software GIS security.</p> <p><b>Objective:</b> studying the methods of data processing in the creation of applied GIS-packages.</p>
43	Designing geospatial databases	<p><b>Aim:</b> to give basic knowledge about methods of designing and working with databases in geoinformation systems, to instill practical skills in working with modern GIS software for designing their own software GIS software.</p> <p><b>Task:</b> the study of methods of designing and working with databases in geoinformation systems.</p>
VII Semester		
44	Business economics	<p><b>Aim:</b> to give basic knowledge about the economy of enterprises in accordance with the national law of Ukraine</p> <p><b>Task:</b> to study the economic principles when implementing projects for the creation of information systems.</p>
45	Programming of applied GIS-tasks (Course project)	<p><b>Aim:</b> to give basic knowledge about data modeling methods in geographic information systems, which will help acquired practical skills in working with modern GIS software, but also understand how a particular operation is being performed inside the system, and will help in designing its own software GIS security.</p> <p><b>Task:</b> studying the methods of data processing in the creation of applied GIS-packages.</p>
46	GIS analysis	<p><b>Aim:</b> to give basic knowledge about different types of geo-images, modern methods of geostatistical analysis and spatial modeling, to instill practical skills in geoinformation analysis and data modeling in geoinformation systems.</p> <p><b>Task:</b> to study methods of analysis of various types of geospatial data using geoinformation systems.</p>
47	Systematical analysis for GIS applications	<p><b>Aim:</b> Providing basic knowledge that will help students in researching, designing, developing technical and programmatic</p>

		<p>geographic information systems (GIS), instilling practical skills in computer-based mathematical modeling of geographic information systems.</p> <p><b>Task:</b> students study and master the basic principles of the theory of systems and system analysis, as well as models and methods that enable to explore the most common properties of geographic information systems.</p>
48	Intellectual analysis and Big Data in geomatics	<p><b>Aim:</b> Providing basic knowledge about Intellectual Analysis and Big Data, implantation of practical skills in computer mathematical modeling of information systems.</p> <p><b>Task:</b> students study and master the basic principles of intellectual analysis and Big Data to solve problems of geomatics</p>
49	Expert evaluation of land	<p><b>Aim:</b> to provide basic knowledge that will help students in developing geographic information systems (GIS) that use when conducting monetary valuation of land, instilling practical skills in applying methods of monetary valuation of land in geoinformation systems.</p> <p><b>Task:</b> students study and master the principles of monetary valuation of land, procedures and methods used in solving tasks of appraising land plots of different purposes.</p>
VIII Semester		
50	BC, labor protection and civil protection	<p><b>Aim:</b> to provide knowledge on the basics of BC, labor protection and civil protection for use in designing and operating computer systems.</p> <p><b>Task:</b> to study the standards and modern approaches for creating employee conditions with consideration requirements of BC</p>
51	GIS analysis (Course project)	<p><b>Aim:</b> to give basic knowledge about different types of geo-images, modern methods of geostatistical analysis and spatial modeling, to instill practical skills in geoinformation analysis and data modeling in geoinformation systems.</p> <p><b>Task:</b> to study methods of analysis of various types of geospatial data using geoinformation systems.</p>

52	Tools of aerospace monitoring	<p><b>Aim:</b> to provide basic knowledge about the means of obtaining, processing, storing and visualizing aerospace monitoring data of the Earth.</p> <p><b>Task:</b> acquaintance with modern means of Earth monitoring and processing of received data and thematic decoding of aerospace images.</p>
53	Cartographical design	<p><b>Aim:</b> to familiarize with modern computer hardware hardware and software, the Open GL graphics interface, skills in working with the Corel DRAW universal graphic program and graphic software for processing raster graphics objects Adobe Photoshop for the development of original layouts cartographic material.</p> <p><b>Task:</b> the study of the basic tools for the creation of electronic cartographic models of printing and web documents, in particular the environment of vector and raster graphic editors, geometric transformations and algorithms. computer graphics.</p>
54	Geomarketing	<p><b>Aim:</b> To teach students to collect, model, analyze and manage data that has a spatial reference, in the implementation of land surveying, cadastral, geodetic or land valuation work. To teach the process of transformation of spatially bound data with corresponding characteristics from various sources into conventional geographic information systems for the purpose of managing land resources.</p> <p><b>Task:</b> to study the aggregate introduction of geoinformation technologies for the processing of data, analysis of geosystems, automated mapping, land evaluation of various categories.</p>
55	Organization and management of geodetic and land cadastral works	<p><b>Aim:</b> to provide basic knowledge about the organization and management of the process of topographic and geodetic production.</p> <p><b>Task:</b> the study of modern methods of organization and management of surveying and land cadastral work.</p>
56	Graduation project of bachelor`s degree	<p><b>Aim:</b> To provide students with knowledge of the structure and order of final work execution.</p> <p><b>Task:</b> to study the standards, qualification</p>

		requirements for bachelors and the requirements for the order of registration and protection of graduation work of the bachelor.
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## **FORM OF ATTESTATION THE GRADUATES**

Certification of graduates for the educational-professional program "Geographic information systems and technologies" in specialty 193 "Geodesy and land management" is carried out in the form of protection of the qualification work of the bachelor and ends with the issuance of the document of the established sample on awarding him a bachelor's degree with qualification: a bachelor in geodesy and land management for educational the program "Geographic information systems and technologies". The certification is carried out openly and publicly.