

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
DNIPRO UNIVERSITY OF TECHNOLOGY

APPROVED
by the Academic Council of the University
«27» June 2024, protocol № 8

Chairman of the Academic Council
_____ Gennady PIVNYAK
«28» June 2024

**EDUCATIONAL PROFESSIONAL PROGRAM OF HIGHER EDUCATION
"Geology"**

FIELD OF KNOWLEDGE	10 Natural Science
SPECIALTY	103 Earth Sciences
LEVEL OF HIGHER EDUCATION	First (Bachelor's Degree)
DEGREE	Bachelor
EDUCATIONAL QUALIFICATION	Bachelor of Earth Sciences

Put into effect from 01.09.2024

Interim Rector
_____ Artem PAVLYCHENKO

Order of 27.06.2024 №19

Dnipro
DUT
2024

PREFACE

Developed by a working group consisting of:

1. Prykhodchenko Vasyl Fedorovych , Professor of the Department of Geology and Mineral Deposits Exploration, Doctor of Geological Sciences, Professor – guarantor of the educational program, head of the working group;

2. Zahrytsenko Alina Mykolaivna, Dean of the Faculty of Natural Sciences and Technologies, Doctor of Technical Sciences, Associate Professor, member of the working group;

3. Zhiltsova Iryna Viktorivna, Head of the Department of Geology and Exploration of Mineral Deposits, Candidate of Geological Sciences, Associate Professor, member of the working group;

4. Lohvin Vasyl Mykolaiovych , Professor of the Department of Geophysical Methods of Exploration, Candidate of Physical and Mathematical Sciences, Associate Professor, member of the working group;

5. Dzhuyan Anastasiia Oleksandrivna, student of group 103-21кк-1, member of the working group.

EXTERNAL STAKEHOLDER REVIEWS:

1. A review of the educational-professional program "Geology" of the first level of higher education, specialty 103 Earth Sciences, at Dnipro University of Technology by Doctor of Geological Sciences, Professor, Corresponding Member of the National Academy of Sciences of Ukraine, M.I. Orliuk (Appendix A).

2. A review of the educational-professional program "Geology" for the preparation of bachelor's degrees in the specialty 103 "Earth Sciences" within the field 10 "Natural Sciences" at the first level of higher education, developed at Dnipro University of Technology by the head of the Department of Geology and Precambrian Geodynamics at the Institute of Geochemistry, Mineralogy, and Ore Formation named after M.P. Semenenko, Doctor of Geological Sciences, Professor H.V. Artemenko (Appendix B).

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INTRODUCTION

The educational and professional program is developed on the basis of the Standard of higher education of preparation of bachelors in the specialty 103 Earth Sciences.

The educational and professional program is used during:

- licensing of the specialty and accreditation of the educational program;
- drawing up curricula;
- formation of working programs of academic disciplines, practices, individual tasks;
- formation of individual curricula of students;
- development of diagnostic tools for the quality of higher education;
- certification of bachelors majoring in 103 Earth Sciences;
- determining the content of training in the system of retraining and advanced training;
- professional orientation of applicants for the specialty;
- external quality control of training.

Users of the educational and professional program:

- applicants for higher education who study at DUT;
- teachers of DUT, which provide training for bachelors majoring in 103 Earth Sciences;
- examination commission of specialty 103 Earth Sciences;
- Admissions Committee of DUT.

The educational and professional program extends to the departments of the university, which participate in the training of specialists with a Bachelor's degree in 103 Earth Sciences.

1 PROFILE OF THE EDUCATIONAL PROGRAM

1.1 General information	
Full name of the institution of higher education and institute (faculty)	Dnipro University of Technology, Faculty of Natural Sciences and Technologies
Higher education degree and title of qualification in the original language	Bachelor, Bachelor of Earth Sciences
The official name of the educational program	Geology
Type of diploma and scope of educational program	Bachelor's degree, single, 240 ECTS credits, term of study 3 years 10 months – on the basis of complete secondary education. 2 years 10 months – on the basis of the educational level of the junior specialist / professional degree of the “junior bachelor”, "professional junior bachelor". Based on the degree of "junior bachelor" or "professional junior bachelor"

	(educational qualification level of "junior specialist"), 60 ECTS credits earned within the previous educational program for the preparation of a professional junior bachelor or junior bachelor (junior specialist) are recognized and transferred.
Availability of accreditation	The National Agency for Higher Education Quality Assurance (NAQA, Ukraine). Accreditation certificate for the educational program. Educational-professional program in Geology, specialty 103 Earth Sciences. First (bachelor's) level. Certificate No. 8148 dated May 16, 2024. The certificate is valid until July 1, 2029.
Cycle/level	National qualifications framework of Ukraine – level 6, FQ-EHEA – the first cycle, EQF-LLL – level 6
Prerequisites	Availability of complete general secondary education / diploma of junior bachelor, professional junior bachelor. The admission requirements for the educational program are determined by the Admission Rules of Dnipro University of Technology, approved by the Academic Council.
Language (s) of instruction	Ukrainian
Term of the educational program	The term may not exceed 3 years 10 months and / or the accreditation period. The educational program is subject to revision in accordance with changes in the regulatory framework of Ukraine in the field of higher education at least once a year.
Internet address of the permanent placement of the educational program description	Information packages by specialty: http://gppkk.nmu.org.ua/ua/ , http://gig.nmu.org.ua/ua/ , http://gmr.nmu.org.ua/ua/ . Educational programs of DUT: http://www.nmu.org.ua/ua/content/infrastructure/structural_divisions/science_met_dep/educational_programs/ .
1.2 The purpose of the educational program	
The program's goal aligns with the University's Strategic Development Plan and its mission to ensure educational quality. It aims to prepare professionals based on the principles of academic integrity, universal human values, national identity, and the creative development of individuals and the future society. These professionals will be competent in solving complex geological tasks and practical problems in the course of their professional activities or studies, and in researching the lithosphere and underground hydrosphere using a range of modern research methods.	
1.3 Characteristics of the educational program	
Subject area	10 Natural Sciences / 103 Earth Sciences / Geology Object of study and activity: natural and anthropogenic objects, processes and phenomena in the geosphere, their relationship, transformation and development in space and time. The purpose of education: the formation of higher education students' ability to solve geological problems of Earth sciences and practical problems in the process of professional activity or training, which involves the application of theories and methods of Earth sciences, which are characterized by complexity and uncertainty of conditions. Theoretical content of the subject area: knowledge of the structure, shape, composition, origin, and development of the Earth or its geospheres, as well as the phenomena and processes occurring in it. Basic knowledge of natural sciences, mathematics and information technology to the extent necessary for researching natural and anthropogenic objects and processes in the geospheres.

	<p>Methods, techniques and technologies: physical and chemical methods, methods of full-scale, direct and indirect research, direct laboratory testing and remote sensing of the components of geospheres, processes and phenomena in the lithosphere and underground hydrosphere, methods of modeling and analysis of information.</p> <p>Tools and equipment: equipment and facilities necessary for field, laboratory and remote research of the composition, structure and properties of the lithosphere, underground geospheres and their components.</p>
Orientation of the educational program	The educational and professional program for the bachelor's degree has an applied orientation. The program is based on well-known scientific results, taking into account the current state of geology, focuses on relevant areas for potential further professional and scientific activities are possible: geology, hydrogeology, engineering geology, and geophysics.
The main focus of the educational program	<p>Special education in the field of 10 Natural Sciences / 103 Earth Sciences focuses on forming professionals with a modern scientific worldview and thinking, capable of performing a range of geological exploration tasks and conducting geological, hydrogeological, and engineering-geological research on geospheres and their components.</p> <p>Key words: geological structure of the Earth, mineral deposits, hydrogeological conditions, engineering-geological conditions.</p>
Features of the program	The uniqueness of the program lies in the formation of knowledge and skills in modern methodologies for conducting geological work and other necessary competencies for solving practical tasks, including geological and economic assessment of mineral deposits, which are essential for the post-war recovery of the country's economy, as well as comprehensive geophysical studies of natural and anthropogenic objects and processes in the lithosphere.
1.4 Suitability of graduates for employment and further study	
Suitability for employment	<p>Types of economic activity according to the classifier of types of economic activity State Classifier 009:2010:</p> <p>Section B Chapter 09 "Provision of ancillary services in the field of mining and quarrying";</p> <p>Section M Chapter 71 "Activities in the fields of architecture and engineering; technical tests and research":</p> <p>71.12 Activities in the field of engineering, geology and geodesy, providing technical consulting services in these areas.</p>
Further training	Opportunity to study at qualification levels: National qualifications framework of Ukraine – level 7, FQ-EHEA – the second cycle, EQF-LLL – level 7.
1.5 Teaching and assessment	
Teaching and learning	Student-centered learning is based on competence and activity-oriented approaches, active self-learning, and the acquisition of practical skills during educational, industrial, and pre-attestation practical training.
Evaluation	<p>Assessment of students' achievement is carried out on a rating scale (passing scores 60... 100) and on an institutional scale ("excellent", "good", "satisfactory", "unsatisfactory"), which is used to convert grades of mobile students.</p> <p>Assessment includes the full range of control procedures depending on the competency characteristics (knowledge, skills, communication, autonomy and responsibility) of learning outcomes, the achievement of which is monitored.</p> <p>The student's learning outcomes, which reflect the achieved level of competencies relative to the expected ones, are identified and measured</p>

	<p>during the control activities using criteria that correlate with the descriptors of the National Qualifications Framework and characterize the ratio of competency requirements and rating indicators.</p> <p>Final control in academic disciplines is carried out based on the results of current control and / or evaluation of complex control work and / or oral answers.</p>
Form of final certification	<p>Certification is carried out in the form of public defense of the bachelor's thesis.</p> <p>Qualification work should involve solving a complex specialized problem or practical problem in the subject area of Earth sciences, characterized by complexity and uncertainty of conditions, using theories and methods of geology, geophysics or hydrogeology.</p> <p>Qualification work should not contain academic plagiarism, fabrication and falsification. The work is checked for plagiarism in accordance with the procedure defined by the system of quality assurance of educational activities and the quality of higher education by the university.</p> <p>Qualification work should be placed in the depository of the Free Economic Zone.</p> <p>The defense of the qualification work takes place in public at the meeting of the examination commission.</p>
1.6 Resource support for program implementation	
Specific characteristics of staffing	<p>All scientific and pedagogical staff involved in teaching disciplines for the specialty 103 Earth Sciences meet the staffing requirements for ensuring the implementation of educational activities for the first (bachelor's) level of higher education in accordance with the Licensing Conditions for Educational Activities.</p> <p>Representatives of employers and the academic community from Geonics LLC, the Dnipro Geological and Hydrogeological Party (Pavlohrad), the Dnipropetrovsk Geophysical Expedition "Dniprogeofizika" (Novomoskovsk), the Institute of Geotechnical Mechanics of the National Academy of Sciences of Ukraine, and the Institute of Geophysics of the National Academy of Sciences of Ukraine are involved in the educational process.</p>
Specific characteristics of material and technical safety	<p>The material and technical support meet the technological requirements for ensuring the implementation of educational activities for the first (bachelor's) level of higher education in accordance with the Licensing Conditions for Educational Activities.</p> <p>The material and technical support for educational activities at Dnipro University of Technology includes classrooms, laboratories, computer rooms, dormitories, dining facilities, wireless internet access points, gyms, and more. Educational premises, computer workstations, and multimedia equipment are available.</p> <p>Material and technical support of the educational program "Geology" allows to perform laboratory and scientific research in the structural units of Dnipro University of Technology, which include specialized laboratories for studying the composition, structure, and properties of the Earth's geospheres. The laboratories are equipped with:</p> <ul style="list-style-type: none"> - optical microscopes for conducting petrographic and mineralographic studies of mineral resources; - equipment and devices for determining the hydro-physical and physical-mechanical properties of soils; - geophysical equipment for measuring geophysical fields and studying the physical properties of rocks;

	- X-ray fluorescence spectrometer for analyzing chemical composition.
Specific characteristics of information and educational and methodical support	<p>The educational and methodical support, as well as the informational resources of the educational-professional program, comply with the regulatory documents of Dnipro University of Technology.</p> <p>Official websites of the University (http://www.nmu.org.ua), Faculty of Natural Sciences and Technologies (http://grf.nmu.org.ua/ua) and graduating departments: geology and exploration of mineral deposits (http://gppkk.nmu.org.ua/ua/), hydrogeology and engineering geology (http://gig.nmu.org.ua/ua/), geophysical methods of exploration (http://gmr.nmu.org.ua/ua/) contain information about educational programs, educational and scientific activities, structural units, admission rules, contacts, working programs and syllabuses. The materials for the educational and methodical support are available on the Moodle distance learning platform, accessible through students' personal accounts.</p> <p>To facilitate the program's online implementation, both instructors and students are provided with free access to the professional version of Microsoft Office, including the Teams application and the Moodle platform.</p>
1.7 Academic mobility	
National credit mobility	Possibility of conclusion of agreements on academic mobility, double certification, etc.
International credit mobility	<p>Possibility of concluding agreements on international mobility, on double certification, on long-term international projects involving student training, etc. It is allowed to accept credits obtained in foreign universities, provided that the acquired competencies correspond.</p> <p>Agreements on international mobility have been concluded with the University of Miskolc (Hungary), under the Erasmus+ K107 program, with the Faculty of Geosciences of the Ruhr University and the Technical School named after Georg Agricola, Bochum (Germany).</p>
Training of foreign applicants for higher education	Foreign applicants for higher education are admitted to study in the Ukrainian language.

2 MANDATORY COMPETENCES

Integral competence of the bachelor in the specialty 103 Earth Sciences - the ability to solve complex geological problems and practical problems in the professional activity of the subject area of Earth Sciences or in the learning process using modern theories and methods of research of natural and anthropogenic objects and processes using the complex interdisciplinary data and in conditions of lack of information.

2.1 General competencies according to the standard of higher education

Code	Competencies
<i>1</i>	<i>2</i>
K01	The ability to exercise one's rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.

K02	Ability to preserve and increase moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, machinery and technology, use different types of physical activity and lead a healthy lifestyle.
K03	Ability to apply knowledge in practical situations.
K04	Knowledge and understanding of the subject area and understanding of professional activity.
K05	Ability to communicate in the state language both orally and in writing.
K06	Ability to communicate in a foreign language.
K07	Skills in the use of information and communication technologies.
K08	Ability to learn and master modern knowledge.
K09	Ability to work in a team.
K10	Life safety skills.
K11	The aspiration to preserve the natural environment.
K12	Ability to act on the basis of ethical considerations (motives).
K12'	Ability to make decisions and act in accordance with the principle of non-acceptability of corruption and any other manifestations of dishonesty.

2.2 Special competencies

The generalized object of professional activity is natural and anthropogenic objects, processes and phenomena in the lithosphere and underground hydrosphere, their interrelation, transformation and development in space and time.

2.2.1 Special competencies according to the standard of higher education

Code	Competencies
<i>1</i>	<i>2</i>
K13	Knowledge and understanding of the theoretical foundations of the Earth sciences as a complex natural system.
K14	Ability to apply basic knowledge of physics, chemistry, biology, ecology, mathematics, information technology, etc. in the study of the Earth and its geospheres.
K15	Ability to collect, register and analyze data using appropriate methods and technological tools in the field and laboratory.
K16	Ability to apply quantitative methods in the study of geospheres.
K17	Ability to comprehensively analyze the composition and structure of geospheres.
K18	Ability to integrate field and laboratory observations with theory in sequence: from observation to recognition, synthesis and modeling.
K19	Ability to monitor natural processes.
K20	Ability to independently investigate natural materials in the field and laboratory conditions, to describe, analyze, document and report on the results.
K21	Ability to plan, organize and conduct research and prepare reports.
K22	The ability to identify and classify known and register new objects in the geospheres, their properties and their inherent processes.

2.2.2 Special competencies taking into account the peculiarities of the educational program

Code	Competencies
1	2
CK01	Ability to conduct geophysical studies to examine natural objects and processes in the lithosphere and underground hydrosphere.
CK02	Ability to assess the effectiveness of further development of exploited deposits, justify the feasibility of developing explored deposits, and perform geological and economic evaluations of new promising objects necessary for the recovery of the country's economy.

3 NORMATIVE CONTENT OF TRAINING, FORMULATED IN TERMS OF LEARNING OUTCOMES

The final and integrative learning outcomes of the bachelor training in the specialty 103 Earth Sciences, which determine the normative content of training and correlate with the list of general and special competencies, are given below.

Code	Learning outcomes
1	2
ПІР01	Collect, process and analyze information in the field of Earth sciences.
ПІР02	Use professional Ukrainian orally and in writing.
ПІР03	Communicate in a foreign language with professionals.
ПІР04	Use information technology, cartographic and geoinformation models in the field of Earth sciences.
ПІР05	Be able to conduct field and laboratory research.
ПІР06	Determine the main characteristics, processes, history and composition of the Earth as a planetary system and its geospheres.
ПІР07	Apply models, methods and data of physics, chemistry, biology, ecology, mathematics, information technology, etc. in the study of natural processes of formation and development of geospheres.
ПІР08	Justify the choice of field and laboratory methods and use them for the analysis of natural and anthropogenic systems and objects.
ПІР09	Be able to perform research on geospheres using quantitative methods of analysis.
ПІР10	Analyze the composition and structure of geospheres on different spatiotemporal scales.
ПІР11	Put in order and summarize materials for field and laboratory research.
ПІР12	Know and apply theories, paradigms, concepts and principles in the Earth sciences.
ПІР13	Be able to communicate the results of activities to a professional audience and the general public, make presentations and notification.
ПІР14	Participate in the development of projects and practical recommendations in the field of Earth sciences.
ПІР15	Be able to choose the best methods and tools for research, data collection and processing.
<i>Special learning outcomes taking into account the peculiarities of the educational program</i>	
СР01	Conduct systematic comprehensive geophysical studies to investigate natural-technogenic objects and processes in the lithosphere and underground hydrosphere.
СР02	Provide geological support for subsoil use projects, justify the feasibility of further development of exploited deposits, assess the effectiveness of developing explored deposits, and perform geological and economic evaluations of new promising objects that are priorities for the post-war recovery of the country's economy.

4 DISTRIBUTION OF LEARNING OUTCOMES BY EDUCATIONAL COMPONENTS

Code	Learning outcomes	Names of educational components
<i>1</i>	<i>2</i>	<i>3</i>
1 MANDATORY PART		
<i>Program learning outcomes</i>		
ПП01	Collect, process and analyze information in the field of Earth sciences.	Ф1 General geology; Ф4 Historical geology; Ф5 Hydrogeology; Ф10 Structural geology and geological mapping; Ф13 Statistical methods in geology; Ф15 Engineering geology; Ф19 Mining-geological modeling. П1 Educational geological practice with the use of topographic methods; П2 Comprehensive training practice in geological surveying; П3 Comprehensive training practice in the specialty; П4 Pre-certification practice; КР Performing qualifying work for the degree.
ПП02	Use professional Ukrainian orally and in writing.	32 Ukrainian language; 35 Specialist's value competencies. КР Performing qualifying work for the degree.
ПП03	Communicate in a foreign language with professionals.	33 Foreign language for professional purposes (English / German / French).
ПП04	Use information technology, cartographic and geoinformation models in the field of Earth sciences.	Б3 Computer Science; Ф2 Geodesy with the basics of topography and cartography; Ф10 Structural geology and geological mapping; Ф12 Geodata processing methods; Ф19 Mining-geological modeling. П1 Educational geological practice with the use of topographic methods; П2 Comprehensive training practice in geological surveying; П3 Comprehensive training practice in the specialty; П4 Pre-certification practice; КР Performing qualifying work for the degree.
ПП05	Be able to conduct field and laboratory research.	34 Physical education and sports; 37 Civil safety; Ф2 Geodesy with the basics of topography and cartography;

1	2	3
		Ф3 Mineralogy; Ф4 Historical geology; Ф7 Petrography and lithology; Ф8 Quaternary geology with the basics of geomorphology; Ф10 Structural geology and geological mapping; Ф14 Geochemistry and geoecology; Ф15 Engineering geology; С2 Geophysical research methods. П1 Educational geological practice with the use of topographic methods; П2 Comprehensive training practice in geological surveying; П3 Comprehensive training practice
ПП06	Determine the main characteristics, processes, history and composition of the Earth as a planetary system and its geospheres.	Ф1 General geology; Ф4 Historical geology; Ф7 Petrography and lithology; Ф8 Quaternary geology with the basics of geomorphology; Ф9 Physics of the Earth; Ф11 Geology of mineral deposits; Ф17 Geotectonics; Ф18 Regional geology; С1 Geology of oil and gas fields.
ПП07	Apply models, methods and data of physics, chemistry, biology, ecology, mathematics, information technology, etc. in the study of natural processes of formation and development of geospheres.	Б1 Higher mathematics; Б2 Physics; Б3 Informatics; Б4 Chemistry; Ф1 General geology; Ф3 Mineralogy; Ф5 Hydrogeology; Ф6 Geological Exploration; Ф7 Petrography and lithology; Ф9 Physics of the Earth; Ф14 Geochemistry and geoecology; Ф16 Interpretation of geophysical data; Ф18 Regional geology; Ф19 Mining-geological modeling.
ПП08	Justify the choice and use field and laboratory methods for the analysis of natural and anthropogenic systems and objects.	Ф3 Mineralogy; Ф5 Hydrogeology; Ф6 Geological exploration; Ф7 Petrography and lithology; Ф10 Structural geology and geological mapping; С2 Geophysical research methods; П1 Educational geological practice with the use of topographic methods; П3 Comprehensive training practice
ПП09	Be able to perform research on geospheres	Б1 Higher mathematics;

<i>1</i>	<i>2</i>	<i>3</i>
	using quantitative methods of analysis.	Ф8 Quaternary geology with the basics of geomorphology; Ф12 Geodata processing methods; Ф14 Geochemistry and geoecology; Ф16 Interpretation of geophysical data; Ф20 Hydrogeological and engineering-geological modeling; С4 Geological and economic assessment of deposits; П1 Educational geological practice with the use of topographic methods; КР Performing qualifying work for the degree.
ПР10	Analyze the composition and structure of geospheres on different spatiotemporal scales.	Б2 Physics; Ф1 General geology; Ф4 Historical geology; Ф5 Hydrogeology; Ф10 Structural geology and geological mapping; Ф11 Geology of mineral deposits; Ф17 Geotectonics; Ф18 Regional geology; Ф20 Hydrogeological and engineering-geological modeling; С1 Geology of oil and gas fields; КР Performing qualifying work for the degree.
ПР11	Put in order and summarize materials for field and laboratory research.	Ф2 Geodesy with the basics of topography and cartography; Ф12 Geodata processing methods; Ф13 Statistical methods in geology; Ф20 Hydrogeological and engineering-geological modeling; П1 Educational geological practice with the use of topographic methods; П2 Comprehensive training practice in geological surveying; П3 Comprehensive training practice; П4 Pre-certification practice;
ПР12	Know and apply theories, paradigms, concepts and principles in the Earth sciences to study the lithosphere and underground hydrosphere.	35 Specialist's value competencies. Ф1 General geology; Ф9 Physics of the Earth; Ф11 Geology of mineral deposits; Ф17 Geotectonics; Ф20 Hydrogeological and engineering-geological modeling; С1 Geology of oil and gas fields; С3 Deposits of construction materials in Ukraine
ПР13	Be able to communicate the results of activities to a professional audience and the	31 Civilizational processes in Ukrainian society

<i>1</i>	<i>2</i>	<i>3</i>
	general public, make presentations and notification.	35 Specialist's value competencies; 36 Science of law; KP Performing qualifying work for the degree.
ИП14	Participate in the development of projects and practical recommendations in the field of Earth sciences.	36 Science of law; 37 Civil safety; Ф15 Engineering geology; C4 Geological and economic assessment of deposits; KP Performing qualifying work for the degree.
ИП15	Be able to choose the best methods and tools for research, data collection and processing.	Ф6 Geological exploration; Ф12 Geodata processing methods; Ф13 Statistical methods in geology; Ф14 Geochemistry and geoecology; Ф20 Hydrogeological and engineering-geological modeling; C2 Geophysical research methods.
<i>Special learning outcomes taking into account the peculiarities of the educational program</i>		
CP01	Perform geophysical research to study natural objects and processes in the lithosphere and underground hydrosphere.	C2 Geophysical research methods; П4 Pre-certification practice; KP Performing qualifying work for the degree.
CP02	Provide geological support for subsoil use projects, justify the feasibility of further development of exploited deposits, assess the effectiveness of developing explored deposits, and perform geological and economic evaluations of new promising objects that are priorities for the post-war recovery of the country's economy.	C1 Geology of oil and gas fields; C3 Deposits of construction materials in Ukraine; C4 Geological and economic assessment of deposits; П4 Pre-certification practice; KP Performing qualifying work for the degree.
2 SELECTIVE PART It is determined by students' choice of academic disciplines from a list		

5 DISTRIBUTION OF THE SCOPE OF THE PROGRAM BY EDUCATIONAL COMPONENTS

Code	Educational component	Amount, credit	The result. control	Distribution by academic quarters
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1	MANDATORY PART	180		
1.1	General training cycle	30		
31	Civilization processes in Ukrainian society	3,0	credit	1
32	Ukrainian language	3,0	exam	3
33	Foreign language for professional purposes	6,0	exam	1;2;3;4

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
	(English / German / French)			
34	Physical culture and sport	6,0	credit	1;2;3;4;5;6;7;8
35	Specialist's value competencies	6,0	exam	5;6
36	Science of law	3,0	credit	11
37	Civil security	3,0	exam	13
1.2	Cycle of special training	150		
1.2.1	Basic disciplines in the field of knowledge	22		
B1	Higher mathematics	8,0	exam	1;2;3;4
B2	Physics	5,0	exam	3;4
B3	Computer Science	4,0	exam	1;2
B4	Chemistry	5,0	exam	1;2
1.2.2	Professional educational components by specialty	81,0		
Φ1	General geology	6,0	credit	1;2
Φ2	Geodesy with the basics of topography and cartography	4,0	exam	1;2
Φ3	Mineralogy	4,0	exam	3;4
Φ4	Historical geology	3,0		3;4
Φ5	Hydrogeology	4,0	exam	5;6
Φ6	Geological exploration	3,0		7;8
Φ7	Petrography and lithology	4,0	exam	5;6
Φ8	Quaternary geology with the basics of geomorphology	3,0	credit	5;6
Φ9	Physics of the Earth	3,0	credit	7;8
Φ10	Structural geology and geological mapping	6,0	exam	7;8
Φ11	Geology of mineral deposits	5,0	exam	7;8
Φ12	Geodata processing methods	4,0	exam	7;8
Φ13	Statistical methods in geology	3,0	credit	7;8
Φ14	Geochemistry and geoecology	4,0	exam	9;10
Φ15	Engineering geology	3,5	exam	9;10
Φ16	Interpretation of geophysical data	4,0	credit	11;12
Φ17	Geotectonics	4,0	exam	11;12
Φ18	Regional geology	4,0	exam	15
Φ19	Mining-geological modeling	4,0	exam	15
Φ20	Hydrogeological and engineering-geological modeling	5,0	exam	15
1.2.3	Special educational components of the educational program	17,0		
C1	Geology of oil and gas fields	4,0	credit	7;8
C2	Geophysical research methods	6,0	exam	7;8
C3	Deposits of construction materials in Ukraine	3,5	credit	11;12
C4	Geological and economic assessment of deposits	4,0	credit	15
1.2.4	Practical training in the specialty and certification	30		
Π1	Educational geological practice with the use of topographic methods	6,0	credit	4
Π2	Comprehensive training practice in geological surveying	6,0	credit	8
Π3	Comprehensive training practice	6,0	credit	12

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Π4	Pre-certification practice	3,0	credit	16
KP	Performing qualifying work for the degree	9,0		16
2	SELECTIVE PART	60,0		
The list of academic disciplines is determined by students' choice				
General and selective parts, total		240.0		

6 STRUCTURAL AND LOGICAL SCHEME

The sequence of the student's full-time study activities is given below.

Year of study	Semester	Quarter	Codes of educational components	Annual volume, credits	Number of disciplines taught during		
					quarter	semester	academic year
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1	1	1	31, 33, 34, Б1,Б3, Б4, Ф1, Ф2	60	8	8	13
		2	33, 34, Б1, Б3, Б4, Ф1, Ф2		7		
	2	3	32, 33, 34, Б1, Б2, Ф3 Ф4,		7	8	
		4	33, 34, Б1, Б2, Ф3, Ф4, П1		7		
2	3	5	34, 35, Ф5, Ф7, Ф8,	60	5	5	14
		6	34, 35, Ф5, Ф7, Ф8,		5		
	4	7	34, Ф6, Ф9, Ф10, Ф11,Ф12, Ф13, C1, C2		9	10	
		8	34, Ф6, Ф9, Ф10, Ф11, Ф12, Ф13, C1, C2, П2		10		
3	5	9	Ф14, Ф15, (B)	60	2	2	7
		10	Ф14, Ф15, (B)		2		
	6	11	36, Ф16, Ф17, C3, (B)		4	5	
		12	Ф16, Ф17, C3, П3, (B)		4		
4	7	13	37, (B)	60	1	1	7
		14	(B)				
	8	15	Ф18, Ф19, Ф20, C4, (B)		4	6	
		16	Π4, KP		2		

Note:

The actual number of educational components in quarters and semesters, taking into account selective courses, is determined after the selection of courses by the higher education students.

8 FINAL PROVISIONS

The program is developed taking into account normative and instructive materials of the international, branch and state levels:

1. Regulations on accreditation of educational programs for the training of higher education, approved by the Order of the Ministry of Education and Science of Ukraine dated July 11, 2019 № 977. Registered in the Ministry of Justice of Ukraine on August 08, 2019 for № 880/33851. [Electronic resource]. - Access mode, 22.01.2020: <https://zakon.rada.gov.ua/laws/show/z0880-19>

2. Criteria for evaluating the quality of the educational program. Annex to the Regulations on Accreditation of Educational Programs for the Training of Applicants for Higher Education (paragraph 6 of Section I). [Electronic resource]. - Access mode, 22.01.2020: <https://naqa.gov.ua/wp-content/uploads/2019/09/Критерії.pdf>.

3. Kvit Serhii. Roadmap for reforming higher education in Ukraine. Educational policy. Portal of public experts. [Electronic resource]. - Access mode, 22.01.2020: <http://education-ua.org/ua/articles/1159-dorozhnya-karta-reformuvannya-vishchoji-osviti-ukrajini>.

4. Glossary. National Agency for Quality Assurance in Higher Education. [Electronic resource]. Access mode, 22.01.2020: <https://naqa.gov.ua/wp-content/uploads/2020/01/%d0%93%d0%bb%d0%be%d1%81%d0%b0%d1%80%d1%96%d0%b9.pdf>

5. ECTS User Guide [Electronic resource]. URL: http://mdu.in.ua/Ucheb/dovidnik_koristuvacha_ekts.pdf.

6. Law of Ukraine "On Higher Education" [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/1556-18>.

7. Law of Ukraine "On Education" [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/2145-19>.

8. Letter of the Ministry of Education and Science of Ukraine dated 28.04.2017 № 1 / 9–239 “On the use of sample educational programs in the work of higher education institutions”. [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/1187-2015-%D0%BF#Text>

9. Methodical recommendations on the development of higher education standards approved by the order of the Ministry of Education and Science of Ukraine dated 01.06.2016 № 600.

10. Letter from the Ministry of Education and Science of Ukraine dated 28.04.2017 No. 1/9-239 regarding the use of sample educational programs in the work of higher education institutions.

11. Letter from the Ministry of Education and Science of Ukraine dated 05.06.2018 No. 1/9-377 regarding the provision of clarifications on educational programs.

12. Standard of Higher Education of Ukraine: first (bachelor's) level, field of knowledge 10 – Natural Sciences, specialty 103 – Earth Sciences. – Kyiv: Ministry of Education and Science of Ukraine, 2019. – 14 pages.

13. National Qualifications Framework. [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/1341-2011-%D0%BF#Text>

14. Regulations on the organization of the educational process of Dnipro University of Technology / Ministry of Education and Science of Ukraine, Dnipro University of Technology. – Dnipro: DUT, 2019. – 53 pages.

15. Regulations on the guarantor of the educational program of Dnipro University of Technology (2020) <http://surl.li/aqusq>

16. Regulations on conducting practical training for higher education students of Dnipro University of Technology (approved by the Academic Council of DUT on 11.12.2018, Protocol No. 15) / Ministry of Education and Science of Ukraine, National Technical University. – Dnipro: DUT, 2018. – 21 pages.

17. Regulations on the assessment of learning outcomes of higher education students (with amendments approved by the Academic Council of Dnipro University of Technology on 18.09.2018; 08.12.2021) <https://cutt.ly/m5WjAPM>

18. Regulations on the organization of the certification of higher education students of Dnipro University of Technology (approved by the Academic Council of DUT on 11.12.2018, Protocol No. 15) / Ministry of Education and Science of Ukraine, National Technical University. – Dnipro: DUT, 2018. – 40 pages.

19. Regulations on the formation and selection of academic disciplines by higher education students of Dnipro University of Technology, approved by the Academic Council on 17.01.2020, Protocol No. 1. <https://www.nmu.org.ua/ua/content/activity/usdocuments/Thechoiceofacademicdisciplinesbystudents2020.pdf>

20. Regulations on the prevention and detection of plagiarism at Dnipro University of Technology (approved by the Academic Council of DUT on 13.06.2018, Protocol No. 8) (with amendments approved by the Academic Council of DUT on 26.03.2019) / Ministry of Education and Science of Ukraine, National Technical University. – Dnipro: DUT, 2019. – 11 pages.

21. Regulations on the educational and methodological support of the educational process of Dnipro University of Technology / Ministry of Education and Science of Ukraine, National Technical University. – Dnipro: DUT, 2022. – 23 pages.

The educational program is published on the university website before the start of student admission.

The educational program extends to all departments of the university and comes into force from September 1, 2024.

The educational program is subject to revision in accordance with changes in the regulatory framework of Ukraine in the field of higher education, but at least once every two years. The duration of the educational program may not exceed 3 years 10 months and / or the accreditation period.

The guarantor of the educational program is responsible for the quality and unique competitive advantages of the educational program.

Educational edition

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EDUCATIONAL PROFESSIONAL PROGRAM OF HIGHER EDUCATION
"Geology"
for the preparation of bachelor in the specialty 103 Earth Sciences

Electronic resource

Issued
at Dnipro University of Technology.
Certificate of Entry in the State Register of ДК No. 1842 dated 11.06.2004.
49005, Dnipro, D. Yavornytskoho Ave., 19.