VYTAUTAS MAGNUS UNIVERSITY

Field of Study:

ENVIRONMENTAL ENGINEERING (E03)

Study cycle: First and Second

SELF EVALUATION REPORT

2021, May

Study Field Data

No	Title of the study programme	State code	Type of studies	Cycle of studies	Mode of study and duration (in years)	Credit volume	Qualification degree and (or) professional qualification	Language of instruction	Minimum education required	Registration date of the study programme	Study programme termination date (if applicable)	Study programme location
1.	Water and Land Engineering	6121EX031	University studies	First	Full-time (4 years) Part-time (6 years)	240	Bachelor of Engineering Sciences	Lithuanian, English	Secondary education	2014		Kaunas, Akademija
2.	Land Use Planning	6121EX030	University studies	First	Full-time (4 years) Part-time (6 years)	240	Bachelor of Engineering Sciences	Lithuanian, English, Russian	Secondary education	1991	2024*	Kaunas, Akademija
3.	Land Use Planning	6211EX028	University studies	Second	Full-time (2 years) Part-time (3 years)	120	Master of Engineering Sciences	Lithuanian, Russian	Bachelor's degree	1995		Kaunas, Akademija

* The completion date of the study programme (2024) is set until all enrolled students complete this study programme.

Self-Evaluation Group

No.	Academic title, name, surname	Position held	Telephone number (office and mobile)	E-mail address
1.	Assoc. prof. dr. Jolanta Valčiukienė	Assoc. professor of the Institute of Land Use Planning and Geomatics, Vytautas Magnus University Agriculture Academy	+370 37 752272 +370 618 60164	Jolanta.Valciukiene@vdu.lt
2.	Assoc. prof. dr. Virginija Gurskienė	Assoc. professor of the Institute of Land Use Planning and Geomatics, Vytautas Magnus University Agriculture Academy	+370 37 752272 +370 614 17853	Virginija.Gurskiene@vdu.lt
3.	Lect. dr. Donatas Jonikavičius	Lector of the Institute of Land Use Planning and Geomatics, Vytautas Magnus University Agriculture Academy	+370 37 752272 +370 620 16359	Donatas.Jonikavicius@vdu.lt
4.	Lect. dr. Daiva Juknelienė	Lector of the Institute of Land Use Planning and Geomatics, Vytautas Magnus University Agriculture Academy	+370 37 752272 +370 683 05151	Daiva.Jukneliene@vdu.lt
5.	Prof. dr. Arvydas Povilaitis	Professor of the Institute of Water Resources Engineering, Vytautas Magnus University Agriculture Academy	+370 37 752337 +370 655 02300	Arvydas.Povilaitis@vdu.lt
6.	Assoc. prof. dr. Rytis Skominas	Assoc. professor of the Institute of Hydraulic Engineering, Vice-dean of the Faculty of Water and Land Management, Vytautas Magnus University Agriculture Academy	+370 37 752351 +370 600 14067	Rytis.Skominas@vdu.lt
7.	Assoc. prof. Gražina Žibienė	Assoc. professor of the Institute of Hydraulic Engineering, Vytautas Magnus University Agriculture Academy	+370 37 752493 +370 674 90602	Grazina.Zibiene@vdu.lt
8.	Kazys Maksvytis	SE Center of Registers Director of Register Management	+370 682 14875	Kazys.Maksvytis@registrucentras.lt
9.	Erikas Kėvišas	I cycle Land Use Planning study programme student	+370 636 05635	Erikas.Kevisas@stud.vdu.lt
10.	Vytautas Sadauskas	II cycle Land Use Planning study programme student	+370 614 87851	Vytautas.Sadauskas@stud.vdu.lt

TABLE OF CONTENT

INTRODUCTION

Vytautas Magnus University (hereinafter VMU or the University) was established in 1922 and re-established in 1989. It is a classical university based on the common beliefs and values of freedom, openness and dialogue, and orientated towards humanistic culture. The University provides degree studies of all three cycles – bachelor, master and PhD studies which cover a broad spectrum of fields ranging from humanities, social sciences and arts to the fundamental sciences, environmental sciences and biotechnologies. The University's Liberal Arts education profile, with core emphasis on studying broadly themed courses, ensures that the studies offered at VMU are comprehensive, they are not restricted to specialized, pre-defined courses. VMU's liberal study policy lets students themselves plan their studies by choosing general study courses and part of the study field courses, they also have the possibility to move from one study programme to another and change the form of studies. Alongside a bachelor degree diploma of their major specialty, VMU graduates can also get a certificate of minor studies and later apply for Master's degree programme of another study field. VMU works with many universities and scientists around the globe, implementing projects, enhancing student and staff exchanges, and improving the study and research system. It is an international and multilingual institution that continuously develops international networks and intercultural dialogues, participates in international scientific, academic and social projects, encourages teacher and student mobility.

VMU is managed by two collegial bodies, the Council and the Senate, and the separate managerial body of the Rector. The Council is a collegial management body which affirms the University's vision, mission and the strategy, financial and other strategic issues; the Senate is a collegial body managing the academic affairs of the University. The University is headed by the Rector, and the Rector's advisory institution is the Rector's Council.

There are 15 academic divisions at VMU: Faculty of Arts, Faculty of Catholic Theology, Faculty of Economics and Management, Faculty of Humanities, Faculty of Informatics, Faculty of Law, Faculty of Natural Sciences, Faculty of Political Science and Diplomacy, Faculty of Social Sciences, Agriculture Academy, Education Academy, Music Academy, Innovative Studies Institute, Institute of Foreign Languages, Botanical Garden. VMU became such a wide-ranging university on January 1, 2019, after the reorganization of the Lithuanian University of Educational Sciences (LEU) and Aleksandras Stulginskis University (ASU), merging these former universities with VMU and ASU becoming a VMU academic division - Agriculture Academy (hereinafter AA or Academy).

The study programmes *in the field of Environmental engineering* are carried out at the Faculty of Water and Land Management (hereinafter - the Faculty) of the AA, which started on June 25, 1946, when the first hydraulic engineers and land use planning engineers were trained. During that time, graduates of the 48th full-time and 35th part-time editions of hydraulic engineers and land use planning engineers were released. Since 1991, the Faculty has been implementing study programmes corresponding to the I cycle of bachelor's studies, and since 1995 of the II cycle of master's studies, during which the graduates of the 25th edition of the I cycle and graduates of the 23rd edition of the II cycle have been released.

In addition to the study programmes of *the study field of Environmental Engineering*, the Faculty also conducts studies in the field of civil engineering (the study programme of Hydraulic Engineering of the II cycle is carried out).

Since 2012 the Faculty consists of three institutes: Hydraulic Engineering, Water Resources Engineering and Land Use Planning and Geomatics. The staff of the Faculty institutes are directly subordinated to the directors of the institutes, and the latter to the Dean of the Faculty. The most important issues (representation of the Faculty, organization of studies etc.) are resolved at the meetings of the Dean's Office. The Dean's Office consists of the Dean, the Vice-Dean and the directors of the three institutes.

The highest institution of academic self-government of the Faculty, which unites teachers, researchers and students to solve the most important operational tasks, is the Faculty Council (hereinafter the Council). The Council considers and submits to the Senate for approval of the study

programmes of the Faculty, the main research directions, adopts resolutions on the most important issues of the organization of the activities of the Faculty and other issues.

The teachers of all three mentioned institutes forming the Faculty are the main persons in the implementation of the study programmes of the evaluated field of study.

The I cycle study programme *Water and Land Engineering* is currently being implemented after the reorganization of the previous study programme *Water Resources Engineering* at the Faculty (implemented since 2014). During the reorganization (2020) the study programme *Water Resources Engineering* was renewed by integrating into it the I cycle study programmes implemented at the Faculty: Land Use Planning (implemented since 1991), Hydraulic Engineering (implemented since 1993), Fisheries and Aquaculture Technologies (implemented since 2014). Thus, the long-term experience of the above-mentioned study programmes is concentrated in one general I cycle study programme under the new name *Water and Land Engineering (*study program data in the register of study and training programmes updated on 04/02/2020*),* which consists of 3 specializations: Land Use Planning, Hydraulic Engineering and Aquaculture Engineering. One of the main reasons for merging the I cycle study programmes, became the unsuccessful admission of students to the first-cycle studies conducted by the Faculty in 2019, when no profitable number of applications for study programmes was received. The declining trends in the number of students have been observed for several years, due to the unfavourable demographic situation and relatively high requirements for students to study engineering, which is quite difficult for them to meet due to school profiling and low and different exam results between urban and rural students. This unfavourable situation due to admission indicators and conditions necessitated a detailed analysis of the needs of the labour market and entrants. In consultation with employers, it was decided to update the study programmes, their results and content, to consider the possibilities of consolidating teachers' and research results and offering entrants a wider range of study opportunities to deepen their skills in certain areas, by choosing one of the three formed specializations in the programme: Land Use Planning, Hydraulic Engineering and Aquaculture Technologies.

The II cycle study programme *Land Use Planning* has been implemented since 1995. In the last few years, given that the majority of students are employed, this study programme is implemented only on a part-time basis, providing students with better opportunities to combine studies and work.

The teachers of the Faculty institutes teach the majority (90%) of the compulsory courses of the study programmes in the field of environmental engineering and supervise the students' final theses. Part of the elective or other study courses are taught by the teachers of the Faculty to students of other VMU or AA faculties and academic divisions, such as the Institute of Foreign Languages, the Faculty of Forest Sciences and Ecology, the Faculty of Agronomy, the Faculty of Natural Sciences, etc. The teachers of the Faculty are subordinated to the directors of the institutes, and the latter to the Dean of the Faculty. Study organization, quality and other issues are resolved by the Dean's Office and the Study Programme Committee (hereinafter referred to as the SPC or the Committee). The scientific and study activities and organizational work of the Faculty are coordinated by the Faculty Council.

In addition to the above-mentioned programmes of the study field of Environmental engineering, the Faculty also implements the study programme of the II cycle study field of Civil engineering - Hydraulic Engineering.

The last external evaluation of the study programmes belonging to the field of environmental engineering was performed by the experts of the Centre for Quality Assessment in Higher Education (hereinafter SKVC) in 2013. The study programmes were evaluated positively. In the conclusions of the programme evaluation[1][2][3], all the presented expert recommendations are analysed, taking into account the changes made in the study programmes. The specific changes made in response to the experts' recommendations are reviewed in detail and presented at the end of each section of the self-evaluation summary.

[1] Access through the internet: https://www.skvc.lt/uploads/valuations/docs/434877_em%C4%97tvarka_MA_ASU_(2013).pdf (in EN)

[2] Access through the internet: https://www.skvc.lt/uploads/valuations/docs/434876_em%C4%97tvarka_BA_ASU_(2013).pdf (in EN)

[3] Access through the internet: https://www.skvc.lt/default/lt/valuations?f__query=Vandens+istekliu+inzinerija&filter_sumbit=1 (in EN)

ANALYSIS OF FIELD AND CYCLES OF STUDIES

1. STUDY AIMS, OUTCOMES AND CONTENT

1.1. Evaluation of the conformity of the aims and outcomes of the field and cycle study programmes to the needs of the society and/or the labour market (not applicable to Higher education institutions (hereinafter – HEIs) operating in exile conditions)

The aim of the I cycle study programme *Water and Land Engineering* is to prepare broad erudition and highly qualified environmental engineering specialists who know modern environmental engineering theories, methods and the most advanced technologies, are able to analyse wildlife phenomena, evaluate the surrounding environment quality, solve sustainable land and water resource use and environmental problems, to implement innovative technical and technological solutions in various fields of cultural landscape formation, land and water resources management.

The aim of the II cycle study programme *Land Use Planning* is to prepare broad erudition and highly qualified land use planning specialists who are able to sustainably solve multiple theoretical and practical problems of environmental engineering, landscaping and land administration, improve their professional activities, have critical, systematic and creative thinking and research (scientific) work experience in professional real estate administration, planning, etc. innovative or science-based real estate technology and management solutions. The learning outcomes of the study programmes are formulated in order to properly prepare the graduate for professional activities

The objectives of the programmes are based on the requirements for the activities of the trained specialists, which are related to the knowledge and abilities acquired by the person who has graduated from the programme. The respective goal of the programme is coordinated with the study cycle, therefore the courses that are necessary for the graduate's ability to make the necessary decisions and perform engineering work are studied.

The learning outcomes of the programmes describe the knowledge, understanding and abilities of the graduate. The learning outcomes of the study programmes are achieved by educating students on a worldview based on ethical and humanistic principles. During the studies, critical thinking is fostered, the ability to communicate in a professional environment is developed, and the ability to analyse the various data is developed.

The aims of the study programmes and intended learning outcomes as well as their connection with the programmes' courses are presented in Annex 1.

The need for hydraulic engineering specialists in the world has increased due to large-scale water and land resource management problems. As public concern about environmental issues grows, so does the demand for environmentally friendly technologies. In the field of water engineering, complex projects for drinking water supply, wastewater treatment, flood protection, etc. are being developed, the quality of which depends on the specialists, their acquired skills and abilities.

The global demand for aquaculture specialists has increased due to overexploited fish stocks in the seas and oceans and the deteriorating ecological status of natural waters, and the fish supply market is undergoing significant changes - deliberately changing the sources of fish supplied to consumers. Throughout the European Union (EU), there are strict restrictions on fishing on the high seas, reductions in fishing fleets and the promotion of aquaculture businesses, which are expected to account for 70% of world fish production in aquaculture systems. This is a major focus of both EU and national fisheries policies, i.e. promoting sustainable fisheries and aquaculture, based on knowledge and innovation, increasing the competitiveness of the sector and reducing negative environmental impacts[4]. In 2019, the European Maritime, Fisheries and Aquaculture Fund was established in accordance with Regulation No. 508/2014 of the European Parliament and of the

[4] Access through the internet: https://www.nma.lt/index.php/parama/lietuvos-zuvininkystes-sektoriaus-20142020-m-veiksmu-programa/apie-programa/8838#res (in LT)

Council, its priorities and budget[5] for 2021-2027 were set. It is planned to allocate more than 60 million euros[6] from this fund to the fisheries and aquaculture sector for the period 2021-2027.

The need for land use planning specialists is closely related to the State long-term development strategy approved back in 2000 by the Resolution No. IX-1187 of the Seimas of the Republic of Lithuania (hereinafter referred to as RL). Its main goal was and is to create an environment for the development of the country's material and spiritual well-being, which is summarized by the knowledge society, a secure society and a competitive economy[7]. The task of the strategy is to ensure the training of highly qualified civil servants in higher education institutions. With this in mind, the main task in training land use planning specialists is to train specialists who could effectively implement the provisions of the Strategy in the field of rural and agricultural development, environmental protection, landscape conservation and land use structure formation. Also in 2000, by the Resolution of the Seimas of the Republic of Lithuania No. VIII-1728 the Strategy for Agriculture and Rural Development was approved, which at that time provided for the establishment of a system for the administration of land and other real estate, legal and economic measures to promote the rationalization of farms, their modernization and diversification, to promote ecological, environmentally friendly farming[8]. Currently, the preparation of the strategic plan of Lithuanian agriculture and rural development for 2021-2027[9] is underway, which also pays great attention to sustainable development, management of natural resources and landscape protection. Also in the last stage of preparation of the document - in the process of coordination - is the General Plan of the Republic of Lithuania (Lithuania 2030)[10], which also pays special attention to ecologically balanced landscape formation, setting land use priorities and rational land use. The provisions and measures envisaged in the latter documents include land administration and management of rural areas, the implementation of which requires the knowledge and skills of land use planning specialists.

According to the report[11] of the Ministry of Economy and Innovation of the Republic of Lithuania, for the development of existing investors and the arrival of new ones, in Lithuanian higher education institutions it is necessary to train more than 4,000 suitably qualified engineering specialists every year. The report of the research and development project "Forecast of the need for agricultural specialists and skilled workers for 2017-2020" states that for the successful functioning and development of the fisheries and aquaculture sub-sector in 2021–2024, 8 fisheries specialists with university education need to be added to the ranks of employees each year; in the sub-sector of hydraulic engineering - 16 specialists with master's and 42 with university bachelor's degrees in hydraulic engineering; in land use planning - 20 land use planning specialists with a master's degree and 39 with university bachelor's degrees, which is determined by the number of these employees working in public administration institutions.

Meanwhile, the 2020 report[12] on the need for agricultural specialists states that the successful operation and development of the fisheries and aquaculture sub-sector in 2025–2028 requires an average of 10 fisheries specialists with a university degree to be employed each year; in the sub-sector of hydraulic engineering - 10 specialists with master's and 26 with university bachelor's degrees in

---

[5] Access through the internet: https://data.consilium.europa.eu/doc/document/ST-10297-2019-INIT/lt/pdf (in LT)

[6] Access through the internet; https://data.consilium.europa.eu/doc/document/ST-9627-2018-ADD-1/en/pdf (in LT)

[7] Access through the internet; https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.193888 (in LT)

[8] Access through the internet: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.103083?positionInSearchResults=0&searchModelUUID=948f1f02-bfcb-4a3d-93ac-398feae5b4a5 (in LT)

[9] Access through the internet: https://zum.lrv.lt/lt/veiklos-sritys/bendroji-zemes-ukio-politika/bzup-po-2020-metu/lietuvos-zemes-ukio-ir-kaimo-pletros-2021-2027-m-strateginis-planas (in LT)

[10] Access through the internet: http://www.bendrasisplanas.lt/2021/02/23/prasidejo-lietuvos-respublikos-teritorijos-bendrojo-plano-derinimas-su-ministerijomis/ (in LT)

[11] Access through the internet: https://www.ku.lt/jtgmf/wp-content/uploads/sites/3/2019/03/Ekonomikos-ir-inovacij%c5%b3-ministerijos-prane%c5%a1imas.pdf (in LT)

[12] Access through the internet: https://zum.lrv.lt/uploads/zum/documents/files/PATIKSLINTA%20%C5%BDem%C4%97s%20%C5%ABkio%20ir%20kaimo%20pl%C4%97tros%20specialist%C5%B3%20poreikio%20tyrimo%20Ataskaita%20-%2020201109-galut-R_Dapkus-VDU_%C5%BD%C5%AAA.pdf (in LT)

hydraulic engineering; land use planning - 8 land use planning specialists with master's education and 17 with university bachelor's education. The need for a stable number of the mentioned specialists is also indicated by the forecasts of the demand for specialists for 2018-2022[13] performed by the Government Strategic Analysis Centre (STRATA). According to the data of these forecasts, the need for specialists in the field of hydraulic engineering in Lithuania for this period is 70 specialists, about 60 in aquaculture, and at least 20 in land use planning.

The need for specialists also determines good employment opportunities for graduates. According to the data of the Strategic Analysis Centre "STRATA" of the Government in 2015[14], when the employment opportunities of graduates of engineering sciences and integrated studies were very clearly stated, it is said that the employment of these specialists is higher than the general employment rate in Lithuania, i.e. in 2013, the employment rates of I cycle university graduates and employment by qualification in the 6 and 12 months after graduation periods are about 60%, and those of II cycle graduates - about 70%. The need for specialists and the current employment opportunities are also evidenced by the inquiries and suggestions of various social partners or other private companies that regularly apply to the Faculty to recruit current students or future graduates of our Faculty. These employment offers are posted on the faculty website[15].

The peculiarity of the competencies of the graduates of these programmes, especially of the I cycle study programme *Water and Land Engineering,* is that they are prepared at the intersection of environmental engineering and other sciences, first of all - civil engineering and agricultural fields, there are no similar studies in other universities of the country. In this way, the study results of the programmes such as: of the I cycle study programme *Water and Land Engineering* – "To understand the broader multidisciplinary context of environmental engineering, be able to apply methods and processes of other fields of science in solving the problems of sustainable use of land and water resources" and of II second cycle study programme *Land Use Planning* – "To be able to combine the knowledge of different fields of study in solving multiple problems of environmental engineering, landscaping and land administration, using modern technologies that conserve land and other natural resources", are relevant and unique, which allows to meet the needs of society and the labour market. These are technical preconditions for the development of Lithuanian water management, fisheries, land use planning and administration activities and to be competitive in today's reality.

Graduates of the study programmes acquire a qualification to work in project-engineering, expert, consulting or managerial work in the companies and institutions of design, construction, maintenance and management of hydraulic structures, water supply and sewage disposal and waste management companies, fisheries and aquaculture public and private companies, environmental management , design and maintenance companies, municipal administrations, regional environmental protection departments, landscaping, territory and land management, real estate cadastre and register administration, real estate formation, appraisal, consulting and expertise companies. Completion of the second cycle study programme *Land Use Planning* and acquisition of a master's degree in particular increases the opportunities for highly qualified expert, research-related or managerial employment in the field of territories and land management and other real estate administration.

The mentioned study programmes are the only study programmes implemented by VMU in the field of environmental engineering. The I cycle study programme of *Water and Land Engineering* is the only such comprehensive university study programme in the field of environmental engineering in Lithuania about innovative technical and technological solutions for sustainable land use and water resources development and environmental protection. Meanwhile, the II cycle *Land Use Planning* study programme is the only one university training programme in Lithuania that prepares land use planning specialists.

[13] Access throught the internet: https://strata.gov.lt/lt/tyrimai/atviri-duomenys/524-samdom-darbuotoj-paklausos-prognozes-duomenys2 (in LT)

[14] Access throught the internet: https://strata.gov.lt/images/leidiniai/Specialistu_kvalifikaciju_zemelapio_pirmine_analize_2015.pdf (in LT)

[15] Access throught the internet: https://zua.vdu.lt/fakultetai/vandens-ukio-ir-zemetvarkos-fakultetas/ (in LT)

1.2. Evaluation of the conformity of the field and cycle study programme aims and outcomes with the mission, objectives of activities and strategy of the HEI

Vytautas Magnus University strategy for 2021–2027[16] was approved by VMU Senate and Council on November 25, 2020.

Mission. VMU is a community-based research, art and study institution, which pursues the mission of the University of Lithuania, established in Kaunas in 1922, creates liberal learning conditions for an individual, develops partnerships, takes active part in the life of Kaunas, advances the future of Lithuania, and contributes to the global cultural and academic development.

Vision. VMU is one of the strongest universities in the Baltic region, operating according to the principles of Artes Liberales, uniting the community for the creation of the future of Lithuania and Europe.

The strategy is based on 5 fields with more detailed objectives: 1. A cohesive and focused University community. 2. International University of science. 3. "Studies 360". 4. Coherence of self-government and responsibility. 5. The role of the University for the development of society.

Vytautas Magnus University Agriculture Academy mission. AA, a community that creates and disseminates scientific knowledge, sincerely strives for every Lithuanian person to have safe and healthy food and a full living environment. This key goal is to: develop leaders and the ability to create and share with other people the knowledge, drive, and desire for continuous improvement; developing and disseminating state-of-the-art knowledge and experience in biological, engineering and social technologies, sustainable use and development of land, forest and water resources; fostering the long-term traditions and achievements of the Academy, based on the most important professional and common human values in its activities.

AA vision. Open to challenges and changes, taking over the best practices of the world's universities, developing internationality, serving one's own country, striving for continuous improvement and leadership among universities in its field[17].

The main strategic directions of AA[18]:

- Improving studies and promoting the employment of graduates, focusing on the modernity of studies, high quality, the needs of students and employers;
- Quantitative and qualitative development of scientific activity, integrating research for studies, fundamental and commercial (applied) research, doctoral studies;
- Increasing internationalization by promoting openness in studies and research;
- Increasing the impact on economic and social processes, focusing on the identification and solution of the country's (region's) problems, etc.

VMU's mission is global, VMU AA's mission is focused on the field in which the study programmes of the study field are evaluated: *Water and Land Engineering* and *Land Use Planning*, solves issues of technology improvement, engineering and technological tools development and research for the university's mission.

The implementation of the mission, vision and main strategic directions of AA in the global market is not possible without modern solutions in environmental engineering. Only the ability to develop, disseminate and effectively apply engineering technologies in the context of the sustainable use of water and land resources enables the realization of mission and vision goals under the conditions of global competition.

Item 5.3 of the VMU Strategic Action Plan for 2021–2027 envisages "Aiming for leadership in training agricultural specialists and formulating the Land, Forest and Water Management and Rural Development Policy". The aims of the programmes (*Water and Land Engineering*- to prepare broad erudition and highly qualified environmental engineering specialists who know modern

[16] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2020/11/VDU-Strateginis-veiklos-planas-2021-2027.pdf (in LT)

[17] Access throught the internet: https://zua.vdu.lt/apie/misija-ir-vizija/ (in LT)

[18] Access throught the internet: https://zua.vdu.lt/apie/misija-ir-vizija/ (in LT)

environmental engineering theories, methods and the most advanced technologies, are able to analyse wildlife phenomena, assess the surrounding environment quality, solve sustainable land and water resource use and environmental problems, to implement innovative technical and technological solutions in various fields of cultural landscape formation, land and water resources management; *Land Use Planning*- to prepare broad erudition and highly qualified land use planning specialists who are able to sustainably solve multiple theoretical and practical problems of environmental engineering, landscaping and land administration, improve their professional activities, have critical, systematic and creative thinking and research (scientific) work experience in professional real estate administration, planning, etc. work or developing innovative and science-based real estate technology and management solutions) is closely related to the tasks provided for in item 5.3 of the VMU Strategic Plan – „Strengthen the role of the University in developing national policies on Agriculture, Forestry, Water Management and Rural Development and training of specialists", „Expand expert and consulting services based on the achievements of modern science both for agricultural entities and for public institutions" and „Actively contribute to the European Green Deal, digitalization of agriculture, circular economy and other initiatives as well as to the substantiation of ideas by research and their implementation in Lithuania".

The goals and study results of the evaluated study programmes correspond to the mission and strategic goals of VMU and AA, further elaborating and ensuring the training of highly qualified specialists to adapt to water and land engineering innovations and to implement high technological level processes in the field of environmental engineering.

1.3. Evaluation of the compliance of the field and cycle study programme with legal requirements

The structure of the study programmes complies with all the legal acts regulating the studies: the requirements of the general scope, the scope of the courses of the study field and the scope of the final thesis, as well as the scope of contact and independent work.
The study programmes also meet the following requirements:

- The Descriptor of Study Cycles[19] in terms of the programmes goals and learning outcomes that are specific for the first and second study cycle;
- The descriptor of the study field in terms of the programmes goals, learning outcomes and the content of the programme courses (The Descriptor of the group of engineering study fields)[20].

The conformity of the study programmes to the general requirements[21] for the implementation of studies is presented in Table 1.3 and Table 1.4.

Table 1.3. I cycle *Water and Land Engineering* study programme's conformity to general requirements for *bachelor programmes*

Criteria	Legal requirements	In Programme
Scope of the programme in ECTS	180, 210 or 240 ECTS	240 ECTS
ECTS for the study field	No less than 120 ECTS	In separate specializations: Aquaculture Engineering – 136 ECTS Hydraulic Engineering – 144 ECTS Land Use Planning – 146 ECTS
ECTS for studies specified by University or optional studies	No more than 120 ECTS	In separate specializations: Aquaculture Engineering – 104 ECTS Hydraulic Engineering – 96 ECTS

[19] Access through the internet: https://www.skvc.lt/uploads/lawacts/docs/346_6b83703b532be84be32dd512a348eae6.pdf (in EN).
[20] Access through the internet: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/48aa06b058b711e5a9129f08109b20ec?jfwid=166ic8bzf9
[21] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/739065a0ce9911e69e09f35d37acd719/asr (in LT)

		Land Use Planning – 94 ECTS
ECTS for internship	No less than 15 ECTS	16 ECTS
ECTS for final thesis (project)	No less than 15 ECTS	15 ECTS
Contact hours	No less than 20 % of learning	In separate specializations: Aquaculture Engineering – 2400 (40,0 %) Hydraulic Engineering – 2340 (42,4 %) Land Use Planning – 2355 (40,7 %)
Individual learning	No less than 30 % of learning	In separate specializations: Aquaculture Engineering – 3999 (60,0 %) Hydraulic Engineering – 4062 (57,6 %) Land Use Planning – 3972 (59,3 %)

Table 1.4. II cycle *Land Use Planning* study programme's conformity to general requirements for ***master programmes***

Criteria	Legal requirements	In Programme
Scope of the programme in ECTS	90 or 120 ECTS	120 ECTS
ECTS for the study field	No less than 60 ECTS	102 ECTS
ECTS for studies specified by University or optional studies	No more than 30 ECTS	30 ECTS
ECTS for final thesis (project)	No less than 30 ECTS	30 ECTS
Contact hours	No less than 10 % of learning	801 (25 %)
Individual learning	No less than 50 % of learning	2399 (75 %)

The I cycle full-time (4 years, 8 semesters) and part-time (6 years, 12 semesters) Study programme plans with the duration and distribution of contact and individual learning are presented in Appendix 2. As already mentioned, the scope of study courses in ECTS in the programme depends on the nature and complexity of the study programme results to be implemented. The scope of study courses varies from 4 to 8 ECTS. Respectively, the scope of contact and individual learning of the study course varies from the scope of the study module ECTS (from 45 hours of contact learning and from 62 hours of individual learning - 4 ECTS and from 90 hours of contact and 94 hours of individual learning- 8 ECTS). Compulsory study field courses of the study programme in the specializations of the study programme include: Aquaculture Engineering - 136 ECTS (57%), Hydraulic Engineering - 144 ECTS (60%) and Land Use Planning- 154 ECTS (64%). Other study courses (study courses of another study field) in specializations include: Aquaculture Engineering - 60 ECTS (25%), Hydraulic Engineering - 52 ECTS (22%), Land Use Planning - 42 ECTS (18%), and general university or optional study courses in all study programme specializations make up 44 ECTS, i.e. 18%. 16 ECTS and 15 ECTS are awarded for internships and bachelor's final thesis in all specializations, respectively, i.e. 3 contact and 157 hours of individual learning and 6 contact and 394 hours of individual learning.

The Study programme plans of the II cycle full-time (2 years, 4 semesters) and part-time (3 years, 6 semesters) study forms with the duration and distribution of contact and individual learning are presented in Annex 2. The programme consists of only 6 ECTS credit courses. Contact work of each studied course is 60 hours, individual learning - 100 hours. Compulsory study courses of the study programme include 102 ECTS or 85% of the programme volume, study courses of other study fields - 18 ECTS or 15%, optional courses of the study field and other study fields cover 6 ECTS each. Research work and final thesis in the scope of other study courses amount to 12 and 30 ECTS, respectively, which makes up 35% of the programme volume. During the research work (studying in the full-time form in the 2nd and 3rd semesters, and in the part-time form in the 4th and 5th semesters) 157 hours are given for individual learning, during which the object of research is selected, a review of the literature is prepared, preliminary research is performed. 30 ECTS (786 individual learning

hours) is allocated for the preparation of the master's final thesis (to complete the research, to summarize them, to present the conclusions and suggestions obtained by the research, to present them at the institute, as well as to defend them in public).

The distribution of ECTS depends on the nature and complexity of the learning outcomes. When study results are more complex, a higher number of student work hours is planned for a study course and more credits are allocated to such a study course compared to courses that include less complex study results. Student workload includes the standard, routine number of hours required to complete a planned activity in a course. Student workload includes time spent in classrooms, laboratories, internships, time performing individual or group tasks, preparing for assessment, and more.

1 ECTS corresponds to 26.67 hours of normal student working time. According to Vytautas Magnus University Rector's Order of July 8, 2020 No. 352 "On the calculation of teachers' pedagogical workload" methodology, the following is allocated to the programmes of both study cycles: 4 ECTS for a course - 45 hours of contact work, 5 ECTS - 45 hours; 6 ECTS - 60 hours; 7 ECTS - 75 hours; and 8 ECTS - 90 hours of contact work. The volume of student workload and the distribution of ECTS are systematically reviewed. The last such review was carried out by the study programme committees (hereinafter SPK) in October-December 2019 (I cycle *Water and Land Engineering* study programme) and in May 2020 (II cycle *Land Use Planning* study programme) by reviewing the programmes and attesting the study courses, the structure of the programmes, the conformity of the content of the study courses to the study cycle, the academic requirements and the sufficiency of the scope of the programmes to achieve the study results.

Detailed study programme plans indicating study courses, their scope ECTS, sequence of study courses, structure of general university, field and other study field study courses ECTS, scope of contact and individual learning hours in study courses are presented in Annex 2.

The qualification requirements for the staff implementing the cycle I and II programme are assessed in Chapter 5 and by presenting the correspondence between the research and the taught courses in the table in Annex 4.

The study courses use the forms of assessment provided for in the VMU Study Regulations[22], such as defences of individual and group, laboratory works and course projects, reports of colloquia, passing an exam, etc. Final reports include exams, except for internship reports and thesis defences. The essential criterion for determining the forms of assessment in study courses, the number of hours of contact and individual learning is the results of the study course. Reports are also organized remotely in accordance with the Description of the Procedure for Organizing Distance Studies[23] and using the Moodle platform, which has become especially relevant in the case of the *Covid*-19 pandemic.

1.4. Evaluation of compatibility of aims, learning outcomes, teaching/learning and assessment methods of the field and cycle study programmes

The learning outcomes of the study programme are formulated according to the aim of study programme and include all components of the aim.

The outcomes of the study course shall be compatible with the outcomes of the study programme: a) The outcome of the study course shall cover the same or a narrower object comparing to the outcome of the programme; b) The outcome of the study course shall define the ability of the same or minor (but not greater) complexity as the outcome of the study programme.

Study topics shall be formed on the basis of learning outcomes - they shall include the objects that are included in the learning outcomes.

Study methods shall be compatible with learning outcomes as well as assessment methods shall be compatible with study methods.

[22] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/12/Studiju-reguliaminas-SEN-069-final.pdf (in LT)
[23] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/02/Nuotoliniu_studiju_tvarka.pdf (in LT)

Study methods are defined by various forms of communication with students (lecture, seminar, laboratory, practical works) and the method of information transfer applied according to the respective form. Examples of the compatibility between study results and study courses, study methods and assessment methods in the programmes are presented in Tables 1.5 and 1.6.

Table 1.5. Compatibilities between the study results of the I cycle Study programme "*Water and Land Engineering*" and the learning outcomes, study methods and assessment methods of the study course "*Fundamentals of Environmental Engineering*"

Learning outcomes of the study programme *Water and Land Engineering*	**Learning outcomes of the study field course *Fundamentals of Environmental Engineering***	**Study methods of the study field course *Fundamentals of Environmental Engineering***	**Assessment methods of the study field course *Fundamentals of Environmental Engineering***
Describe the essential theoretical and applied bases and concepts of environmental engineering, be able to identify environmental phenomena, international and national environmental and sustainable development problems and their causes, have a coherent knowledge of environmental engineering studies.	Define the basic concepts and classifications of environmental engineering, the principles of human population and environmental interaction.	Interpretation; analysis of problematic examples and questions; discussion, performance of practical tasks, consulting.	Written testing and questioning, evaluation of problem solving and completed practical tasks, observation of discussions.
	To identify environmental phenomena, international and national environmental and sustainable development problems and their causes.	Interpretation; analysis of problematic examples and questions; discussion, performance of practical tasks, consulting.	Written testing and questioning, evaluation of problem solving and completed practical tasks, observation of discussions.
	Describe the distribution of natural resources, the dynamics of their use, forecasts, assessing the needs and attitudes of society.	Interpretation; analysis of problematic examples and questions; discussion, performance of practical tasks, consulting.	Written testing and questioning, evaluation of problem solving and completed practical tasks, observation of discussions.
Understand and assess the current environmental situation, predict the probability and extent of impact on the environment, its components and people, ethical, environmental and commercial circumstances of engineering activities, select or model environmental control and pollution prevention measures.	Explain and evaluate the current environmental situation, ethical, environmental and commercial circumstances of engineering activities.	Interpretation; analysis of problematic examples and questions; discussion, performance of practical tasks, consulting.	Written testing and questioning, evaluation of problem solving and completed practical tasks, observation of discussions
	Predict the probability and magnitude of effects on the environment, its components and humans.	Interpretation; analysis of problematic examples and questions; discussion, performance of practical tasks, consulting.	Written testing and questioning, evaluation of problem solving and completed practical tasks, observation of discussions.

Table 1.6. Coherence between the learning outcomes of the II cycle study programme "*Land Use Planning*" and the learning outcomes, study methods and assessment methods of the study course "*Urban Land Use Planning*"

Learning outcomes of the study programme *Land Use Planning*	**Learning outcomes of the study field course *Urban Land Use Planning***	**Study methods of the study field course *Urban Land Use Planning***	**Assessment methods of the study field course *Urban Land Use Planning***
Understand the principles of environmental engineering and be able to apply them to solve new engineering tasks that are directly related to landscaping, land administration and real estate formation issues.	Be able to describe the main concepts, evaluate the development processes of urbanized and currently urbanized areas.	Interpretation; discussion.	Observation of the discussions.
	Be able to describe the significance of cities, assess the need of land for urbanization.	Interpretation; illustration; case studies; performance of practical work.	Observation of case studies. Evaluation of the performed practical work. Colloquium - test.
	Be able to list and evaluate the principles of urban planning, apply the land use regulations of these areas.	Interpretation, case analysis, practical work.	Case studies and evaluation of practical work performed. Colloquium - test.
Be able to identify, find, evaluate data required for engineering work, landscaping and land administration using databases and other information sources.	Be able to describe the significance of the elements of the natural environment, select areas for the location of greenery.	Interpretation, discussion, performance of practical work.	Observation of the discussions, evaluation of practical work. Exam - written assessment.
	Be able to describe indicators of sustainable urban development.	Case analysis, analysis of problem examples.	Case analysis evaluation; Evaluation of the analysis of problem examples. Exam - written assessment.

Compatibilities between the objectives of the evaluated study programmes, the expected study results and the study courses are presented in Annex 1.

The implementation of study programmes encourages the creativity and innovation of teachers by using a wide variety of active teaching (learning) methods and the flexibility of their use: interpretation; preparation and presentation of reports; case analysis, problem solving, demonstration, project/study preparation and presentation, information analysis and summarization, video review, internships, etc. In order to achieve the maximum study result, the unit supervising the professional development of teachers - the Institute of Innovative Studies, the Study Quality Department organizes teacher training to use a variety of effective teaching/learning methods, evaluation methods, to achieve compatibility between study results, studies and evaluation methods. When preparing and updating the descriptors of study courses, the aim is that the study programme, the results of the courses and the study and evaluation methods are compatible with each other.

1.5. Evaluation of the totality of the field and cycle study programme courses/courses, which ensures consistent development of competences of students

Study programmes are designed to maintain the logical connections and sequence of study courses. The coherences of the study course sequence are indicated in the study course descriptors. Each course can be taught only with the preparation of one or another course.

In the I cycle study programme, general university courses, study field courses and courses of study fields related to it are taught in the 1st- 2nd year, in the 3rd-4th year - study field or related courses, professional activity practice is carried out. In this way, logical connections between the courses taught are formed, i.e. the courses of the study field or other study fields related to it are studied already having the general university and the necessary bases of the study field courses. Studies are completed with the defence of the final thesis. The aim of the final thesis is to independently apply the practical and theoretical knowledge acquired during studies in solving specific environmental engineering tasks or problems, to determine the student's readiness for independent work. In separate specializations of the *Water and Land Engineering* study programme, study courses and their content are arranged so that students learn: in Aquaculture Engineering - to design, build and maintain and manage modern open and closed aquaculture systems; in Hydraulic Engineering – to design, construct and maintain water engineering and other structures; in Land Use Planning - to prepare land use planning documents, perform geodetic works, cadastral measurements and assessment of land and other real estate.

In the II cycle study programme, the scope of all courses is 6 ECTS, except for the final thesis, the scope of which is 30 ECTS. Here, too, the logical connections and sequence between the courses studied are maintained, i.e. certain courses of the study field or courses related to the study field are already studied with the necessary bases of these study courses, which have been acquired in the previously combined courses. In addition to the study field and related courses of other study fields, in the II cycle studies the student's readiness for research is important, therefore at the beginning of studies students listen to the research methodology, which creates preconditions for planning research and choosing research methods. In the following semesters (study module - Research work-1) the idea of the final thesis is chosen, the aim and main tasks of the research are formulated, the literature analysis is performed. In the last course of master's studies (study courses - Research work -2, Master's Thesis) the research methodology is prepared, research is performed, analysis of results is made, conclusions are prepared and the master's thesis is submitted for defence. Studies are also completed by the defence of the submitted final thesis. A necessary condition for submitting and defending the prepared master's thesis is the approval of the results of the work by the student participating in a scientific conference or preparing and publishing a scientific publication on the topic of the final thesis.

Plans for the implementation of study programmes, which also show the consistency of study courses, are presented in Annex 2.

The content and teaching methods of the study courses of both cycles study programmes are harmonized with the results of the study programme. Students acquire/deepen the knowledge and skills directly required for engineering work in hydraulic engineering design, construction, maintenance and management companies and institutions, water supply and sewage disposal and waste management, fisheries and aquaculture, land use planning and landscaping projects, land and cadastral measurements of buildings, land mapping, land plot planning, landscape architectural work, and land market research and real estate appraisal.

Study programmes are updated once a calendar year by updating the content of the taught topics created in individual study courses, and the descriptors of the study courses that make them up are certified for 3 years. This ensures that the content of the programme is in line with the latest advances in science, environmental engineering and technology. The last update of the evaluated study programmes in 2019/2020 was also determined by the necessity to comply with the VMU study

regulations. And updated short descriptors of study courses are available on the VMU study programme website[24] and in the Moodle environment.

1.6. Evaluation of opportunities for students to personalise the structure of field study programmes according to their personal learning objectives and intended learning outcomes

VMU provides students with possibilities to study according to an individual study schedule in order to meet specific learning needs. The schedule is designed on the basis of the implemented study programme and individual study plans. An individual study schedule determines the distribution of the taken courses at a certain time, the number and time of consultations, the form and order of assessment, the beginning and end dates of the examination session. Studies according to the individual study schedule are regulated by the Description of the Procedure for Providing the Individual Study Schedule[25].

VMU also provides students with opportunities to take individual studies when creating their own individual study plans following Artes Liberales principles in order to acquire additional knowledge and skills necessary to prepare for further academic and professional activities. Individual studies are regulated by Order on Organization of Individual studies[26] and VMU Study Regulations[27]. Individual studies may be chosen by the I cycle and integrated studies students from the second semester, but not later than the sixth study semester. A student can continue and complete individual studies free of charge while studying for a Master's degree at the University. Only the students who are motivated and prepared are selected for individual studies.

Individual learning needs are also assured by the possibility to take freely elective minor studies that are one of the features of Artes Liberales studies in VMU. Minor studies are organized in accordance with VMU Description of Procedure for Organization of Minor Studies[28]. Minor study programmes consist of courses taught in the I cycle or integrated study programmes of a particular study field. VMU offers a choice of minor studies from more than 40 related study programmes[29]. Four students of the I cycle study programme *Land Use Planning* in the evaluated field of study are studying the Pedagogy minor study programme.

Moreover, the University is intercultural and multilingual that is why students have opportunities to choose different foreign languages. More than 30 different language are available at the University.

In the I cycle *Water and Land Engineering* study programme, students up to 2019/2020 academic year were given at least 12 ECTS in foreign languages, from 2020/2021 academic year, adapting the study programme to the descriptor of VMU Study Regulations, the number of language credits may be 24 ECTS depending on the courses chosen by the student.

In general, the total number of credits of students' freely elective courses in the I cycle *Water and Land Engineering* study programme is 44 ECTS, which, as mentioned, consists of group A – study courses of basic science and art and foreign language courses and group B – study courses of alternative freely elective courses, when choosing the appropriate study courses assigned to the mentioned groups, students are provided with conditions to individualize the study process taking into account personal learning goals. Also, one of the most prominent individualizations is the possibility for students to choose one of three possible specializations of the I cycle *Water and Land Engineering* study programme: Land Use Planning, Hydraulic Engineering or Aquaculture Engineering.

[24] Access throught the internet: https://www.vdu.lt/lt/study/program/show/311/ (in LT)
[25] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2015/01/VDU-individualaus-studiju-grafiko-teikimo-tvarkos-apra%C5%A1as.pdf (in LT)
[26] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2012/04/ORDER-ON-INDIVIDUAL-STUDIES-ORGANIZATION.pdf (in EN)
[27] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2019/12/Study_Regulations_2019.pdf (in EN)
[28] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2017/06/Description-of-procedure-for-organisation-of-minor-studies-2017-06-07.pdf (in EN)
[29] Access throught the internet: https://www.vdu.lt/lt/studijos/gretutines-studijos/gretutiniu-studiju-programos/ (in LT)

The II cycle *Land Use Planning* study programme also gives the freedom to individualize studies by choosing 12 credits from the list of offered freely elective study courses, i.e. during the studies, the student can choose 2 (6 ECTS) elective courses at his/her discretion, which in his/her opinion would be useful for acquiring or deepening additional knowledge and skills. Also, the topic of the master's theses is offered to students from the research topics of the Institute of Land Use Planning and Geomatics by forming a research (12 ECTS) and final thesis (30 ECTS) plan. Assessing the choice of research and final thesis topics and electives, the student's choice amounts to 54 ECTS, i.e. 45% of the total study programme.

1.7. Evaluation of compliance of final theses with the field and cycle requirements.

Preparation and defence of final theses is regulated by VMU Study Regulations and General Order on the Final Theses Preparation and Defence[30].

General Order on the Final Theses Preparation and Defence describes the general requirements for final theses preparation and defence of first and second study cycle, integrated and professional studies. Special requirements for preparation, formatting, and presentation for defence of final theses in the Final Thesis Evaluation Commission (hereinafter BDVK) are set by faculty[31][32].

Students can defend their final theses after completing the study programme courses. In both study cycles final theses are defended at the end of the last semester. If the thesis is evaluated negatively, the student may re-defend the final thesis no earlier than after six months after the first defence. Thesis evaluations cannot be appealed however appeals may be lodged against breaches in the organization of the final thesis evaluation.

Pursuant to the Decree of the Chancellor of the Agriculture Academy “On student participation in research and publicity of research results” issued on January 5, 2021 No. ŽŪA-2021-02 and according to the methodological requirements for the preparation of the Faculty’s II cycle final theses of the in master's studies, the final thesis is defended only in case of approbation of research results at the conference and publication in a scientific journal or science popularization publication. For this purpose, the AA annually organizes a master's students' scientific conference "Young Scientist", where the majority of students (about 95%) read reports and provide publications. However, students who have worked consistently also become co-authors of publications in *Web of Science* databases with citation index or in publications referenced in other international databases.

The topics and supervisors of both study cycles, final theses are offered by the appropriate Faculty institutes. During the reporting period, no final theses were prepared (in both cycles), on the order of the social partners. The final theses are reviewed by reviewers before the public defence. The content of the final theses and their compliance with the field studies are analysed by the meeting of individual institutes that supervise the implementation of individual specializations or the II cycle study programme. The assessment of the compliance of the final theses with the requirements of the field and the cycle is submitted by the chairman of the BDVK, who submits a report to the Faculty Council, which approves/does not approve the report submitted by the chairman. The final thesis analyse the rational land use of suburban areas, the peculiarities of the dissemination of spatial data sets in their territorial planning, sustainable territorial planning, solutions of land holdings and special territorial planning land use planning documents, their peculiarities and impact on sustainable territorial development, construction and other real estate cadastre data accuracy, design compliance studies, etc. The topics of the final theses defended in both study cycles in 2018-2020 and their assessment are presented in Annex 3. The head of the study programme committee and other members participate in the defence of the final theses.

[30] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2020/05/GENERAL-ORDER-ON-THE-PREPARATION-AND-DEFENCE-OF-THE-FINAL-THESES.pdf (in EN).
[31] Access through the internet: https://zua.vdu.lt/wp-content/uploads/2020/04/VUZF-BBD-rekomendacijos-2020-2.pdf (in LT)
[32] Access through the internet: https://zua.vdu.lt/wp-content/uploads/2019/01/Magistranturos-baigiamojo-darbo-rengimo-metodiniai-2019.pdf (in LT)

The BDVK consists of a chairman (social partner, head of a state enterprise or department) and members: 3 employees (researchers) of the institutes conducting basic studies and a social partner, a total of 5 members. The structure of the commission is approved by the Faculty Council and the Chancellor of the Agriculture Academy. When assessing the final theses, attention is paid to the quality of the final thesis, its presentation, the student's theoretical preparation, the ability to present ideas clearly and consistently, to provide answers to questions on the topic of the thesis and the reviewer's evaluation.

According to the order of the Rector of Vytautas Magnus University of May 24, 2017 No. 201, final theses are placed and stored in the CRIS (VMU Science Management System) repository.

During the reporting period at 2019 one bachelor's thesis was prepared by order of the social partners (the title of the final thesis is “Investigation of Vertical Deformations of the Building”).

Expert recommendations provided during the last external evaluation related to *Study aims, outcomes and content*			
Eil. Nr.	*Recommendation*	*Actions taken by the HEI*	*Comments*
I cycle Water Resources Engineering study programme			
1.	Provide one course in year I or II studies as an introduction to specialty studies so that students understand the prospects for their employment and further work or can begin to prepare for a narrower specialization.	In the renewed study programme *Water and Land Engineering*, in the first semester, students listen to the introductory course Basics of Environmental Engineering, the aim of which is to provide students with essential knowledge related to current issues and work in the field of environmental engineering.	
I cycle Land Use Planning study programme			
2.	Use the good relations with social partners to identify the need for changes to the curriculum as regards new technologies and to minor tendencies in order to detect possible new short or long-term markets.	The social partners participate in the activities of the study programme committee, they are also members of the BDVK, and annually participate in various seminars and conferences. As active participants in the listed activities, they make suggestions to the institutes of the Faculty on how to improve the study programmes, what problems arise in practice and what they expect from future graduates. Taking into account their remarks and suggestions, the content of study courses is changed to include new topics, relevant topics of final theses are proposed, new and updated already installed computer programmes, equipment currently used or put into practice.	
II cycle Land Use Planning study programme			
3.	Research should reflect a clear impact on programme objectives and learning outcomes.	The aim and results of the study programme have been adjusted accordingly taking into account the areas and activities of research.	

Please provide main results of the self-evaluation in the area of *Study aims, outcomes and content*
Strengths
1. The study programmes in the evaluated field of study are unique and the only university study programmes in Lithuania that prepare engineers necessary for the proper development of water and land resources and their sustainable management. 2. During the year of implementation of the study programmes, using the accumulated long-term experience, taking into account the comments of experts and social partners, the content of study programmes in the field of environmental engineering has been prepared and refined, the objectives

and achievable results have been concentrated, which correspond to the descriptor of the group of study fields in Engineering. The study results are relevant and meet the needs of the labour market.

3. The extremely diverse and wide-ranging *Water and Land Engineering* study programme covers the entire sphere of water and land resources and gives students the opportunity to choose the field they wish to deepen through three specializations: Land Use Planning, Aquaculture Engineering and Hydraulic Engineering.

Areas for improvement

1. Consistent monitoring of the implementation of study programmes, based on the data of student surveys, observations of social partners and taking into account changes in the labour market of water and land engineering specialists, will also necessitate adjustments in the study programmes themselves and, if necessary, their implementation processes.

2. LINKS BETWEEN SCIENCE AND STUDY ACTIVITIES

2.1. Evaluation of the sufficiency of the science (applied science, art) activities implemented by the HEI for the field of research (art) related to the field of study

A distinctive feature of the Faculty is that the development of scientific activities is directly related to the studies being carried out. As already mentioned, three institutes integrating scientific and study activities (Hydraulic Engineering, Water Resources Engineering and Land Use Planning and Geomatics) were established in 2012, consisting of groups of teachers and active scientists specializing in and collaborating with other divisions of the University (combining the research potential of several divisions) in research on *hydraulic engineering, water resources engineering, aquaculture and land use planning* and forms the basis for the interaction between environmental engineering science and studies. The Aquaculture Center also operates at the Institute of Hydraulic Engineering.

The following (priority) research is carried out in the institutes:

- Physical and digital modelling of hydraulic processes;
- Application of Nano and other technologies in water management and construction processes;
- Research of durability of structures and materials of hydraulic engineering and agricultural structures;
- Change of water balance elements, modelling of hydrological processes, drainage and irrigation systems;
- Water pollution and measures to reduce it. Restoration of damaged aquatic ecosystems;
- Management and sustainable use of water resources (hydropower, flood risk management, inland waterways, renovation of water bodies);
- Optimization of land use composition and land use in Lithuanian agrarian landscapes;
- Application of GIS, remote and other research technologies for land administration and spatial planning works;
- Research on technologies for closed-loop fisheries;
- Accuracy research of object classification by capturing object reflection values;
- Application of innovative technologies and teaching/learning methods in improving the quality of engineering studies.
- Research on technologies for closed-recirculation system fisheries;
- Accuracy research of object classification by capturing object reflection values;
- Application of innovative technologies and teaching/learning methods in improving the quality of engineering studies.

The most important publications of the study programme teachers and researchers on this topic during 2017-2020 are presented in Annex 4.

Engineering R&D activities were assessed with 4 points out of 5 possible (the ongoing research is of a high level and recognized internationally). Of the 48 technology research units evaluated,

working in 10 fields of science, the researchers of the University of Environmental Engineering dropped out to only two research units working in other fields of science. When evaluating the field of Environmental Engineering, the University scientists were recognized as the best in Lithuania (5 research units work in this field in Lithuania). The economic and social impact of R&D activities was assessed with 3 points (the research carried out is important for society; the relationship with business, decision-makers and society is as appropriate for a recognized academic institution). And the viability of R&D activities is assessed with 2 points (over the next 5-10 years, academic staff have the opportunity to maintain the quality of R&D activities and the economic and social impact at the same level). According to experts, the research carried out in the field of environmental engineering is mainly focused on environmental pollution, therefore this field has both engineering and management elements. Researchers in the field regularly publish articles in high-ranking scientific journals, participate in and deliver oral presentations at well-known international conferences in various countries around the world (e.g., USA, Japan, France, Sweden, India, Canada). There is a strong doctoral programme, although there are no doctoral students from abroad.

The results of the annual evaluation of scientific activities carried out by the Lithuanian Science Council also show the high qualification of scientists in the field of Environmental Engineering. In 2017, for a formal evaluation, 1 conditional researcher working full-time scored an average of 6.08 points (the average in this field in Lithuania was 5.9), in 2018 - 6.41, and in 2019 - 10.34 points. Assessing these data, it should be noted that every year teachers working in the field of Environmental Engineering increasingly publish their scientific results in higher-level journals.

Integration of scientific results into studies. At the beginning of each study year, teachers adjust/update study content, lecture notes, laboratory/practical work, visual material, case studies and discussions to include new scientific knowledge (e.g. improvement of irrigation methods using the Internet of Things, 4G and 5G technologies, "smart" drainage system; nanomaterials). The knowledge disseminated during scientific conferences or seminars is regularly discussed among teachers and passed on to students. When new laboratory or other scientific equipment is purchased, it is introduced to students (e.g. at the International Conference on Nutrient Removal and Recovery, Australia, 2018, new technologies for the recovery of nitrogen and phosphorus compounds from wastewater were introduced), its capabilities and performance principles (e.g.: continuous programme data loggers - Data Loggers; plant transpiration porometer; new generation hygrometers, drones, etc.). The equipment is adapted for laboratory work.

Students are encouraged to participate in research/projects conducted by Faculty teachers. The results obtained in such projects are used in students' final theses (for example final theses "Investigation of Vertical Deformations of the Building"). Students are introduced to the projects implemented at the Faculty and their results every year. Online links to relevant visual information and/or access to remote dissemination seminars are provided.

Cooperation with external partners in research activities. In the field of environmental engineering, the teachers and researchers of the Faculty maintain contacts with Lithuanian and foreign science and studies and business partners through the organization of scientific projects, commissioned works and conferences/seminars. The main directions and research topics in which the cooperation takes place are: research on the sustainable use of agricultural territories; development of environmentally friendly local building materials and sustainable structures for hydraulic and agricultural structures; development of innovative aquaculture and water treatment technologies; modelling, management and forecasting of quantitative and qualitative parameters of water resources.

Below is information about the activities performed by the Faculty staff and the partners who participated in them.

International programme projects:

• *Integrated intelligent sensor system for improved of water supply* (ES FP7 programme), 2014-2017. **Partners:** University of Vienna, University of Tor Vegata in Rome, French Atomic Energy Agency, 5 research and innovation development institutions in the United Kingdom and Belgium.

• *Boosting the sustainability of the urban water cycle: energy harvest in the water industry using micro-hydropower technology* (LIFE programme), 2018-2021. **Partners:** CARTIF (Spain), IMP PAN (Poland), AGULEON and SUEZ España (Spain).
• *Hydropower solutions for developing and emerging countries* (Horizon 2020 programme), 2019-2022. **Partners:** WIP (WIRTSCHAFT UND INFRASTRUKTUR GMBH & CO PLANUNGS KG, Germany) and 13 other partners, including 5 from Africa and Latin America.
• *Water emissions and their reduction in village communities-villages in the Baltic Sea region as pilots-village waters* (Interreg Baltic Sea Region programme), 2017-2019. **Partners:** Finnish Institute of Natural Resources (LUKE), University of Latvia, Tallinn University of Technology, Polish Institute of Technology and Life Sciences.
• Development of interactive and animated drawing teaching aids (ERASMUS + KA2 programme), 2017-2020. **Partners**: Silesian University of Technology, Riga Technical University, Slovak University of Technology, Panevėžys College, Vilnius Builders' Training Center, Estonian Ida-Viruumaa Vocational Training Centre, Lithuanian Society of Engineering Graphics and Geometry.
• EU structural funds. Measure: Intelligence. Joint science-business projects No.J05-LVPA-K. PRIORITY I. Promotion of research, experimental development and innovation Development of prototypes of premixes based on organic zootechnical feed additives. No. J05-LVPA-K-04-0042. Executor - UAB Santranga, Vytautas Magnus University. 2019-2020.

National programme projects:

• Assessment of the impact of climate change and other abiotic factors on aquatic ecosystems (National Science Programme “Sustainability of Agro, Forest and Aquatic Ecosystems” administered by the Lithuanian Science Council (LMT)), 2015-2018. **Partners:** Vilnius University, Lithuanian Energy Institute, Nature Research Centre, Norwegian Bioeconomy Research Institute.

International projects with economic entities:

• Investigation of equipment effectiveness and process of hatchery and growing of Salmonids fish part 2, 2017-2018. **Customer:** AS Nora *Watertech* (Norway).

Projects with Lithuanian economic entities:

• Modelling of the stability of the additional section of the north-western slope of Gediminas Hill, 2017, **Customer** UAB “Rekreacinė statyba”.
• Stability modelling of the south-eastern slope of Gediminas Hill, 2017, **Customer** UAB “Rekreacinė statyba”.
• Evaluation of diagnosis of the condition of mobile technical systems of a building. Analysis of mound remediation measures. 2017. **Customer** UAB “Rekreacinė statyba”.
• Research on technologies for the use of agroperlite. 2018-2019. **Customer** UAB "Soltera".
• Possibilities of decontamination and use of wastewater generated in UAB "Baisogalos bioenergija" catfish breeding farm. 2017-2018. **Customer:** UAB "Baisiogalos bioenergija".
• Identification of the possibilities of using membrane filtration in closed fish farming recirculation systems. 2017-2018. **Client:** UAB "Minijos investicija".
• Evaluation of the technological peculiarities of shellfish farming and the impact of these activities. 2018. **Customer:** UAB "Investara".
• Stability modelling of the south-eastern slope of Gediminas Hill and calculations of the stability of the defensive wall. 2018. **Client**: Lithuanian National Museum.
• Use of fibrous hemp in the development of thermal insulation concrete for insulation of energy efficient buildings. 2018. **Customer:** UAB "Inovatyvūs sprendimai".
• Stability modelling of the western slope of Gediminas Hill. 2018. **Client:** Lithuanian National Museum.
• Specialized inspection of another transport structure (bridge over Agluona river in Biržai town, Kęstučio str.) with non-destructive tests of concrete structure, evaluating concrete

and reinforcement properties of concrete and reinforced concrete structures. 2019. **Client:** UAB "Projektai ir Co".

• Specialized inspection of the drinking water tank. 2019. **Customer:** UAB "Vilniaus vandenys".

• Research on the regulation of general construction works. 2019. **Client:** Lithuanian Association of Land Reclamation Companies.

• Slope located at Sierakauskas Street No. 25, Vilnius, stability modelling and analysis. 2019. **Customer:** UAB "Realinija".

• Development/improvement of technologies for practical use of "Knitted Sock" geotextile. 2019-2020. **Customer:** UAB "Evopipes Radius".

• Shopping centre building located at Kauno str. 22 in Vievis, studies of vertical deformations of support columns. 2019. **Customer:** UAB "Vievio NT".

Projects with state institutions:

- Feasibility study of sludge generated in closed aquaculture systems. 2016-2017. Client National Paying Agency under the Ministry of Agriculture.
- Hydraulic engineering building in J. Biliūno str. 15, Panevėžys, expertise. 2017. Customer Panevėžys City Municipality Administration.
- Engineering research of the condition of Jonava city ponds hydraulic structures (dams). 2017. Customer Jonava district municipality administration.
- Regulation of soil moisture regime. 2016-2019. Client National Paying Agency under the Ministry of Agriculture.
- Assessment of the condition of reclamation ditches using remote sensing methods. 2016-2017. Client National Paying Agency under the Ministry of Agriculture.
- Application of controlled drainage with denitrification bioreactors for optimization of soil moisture and nutrient transport in drained lands. 2016-2017. Client National Paying Agency under the Ministry of Agriculture.
- Scientific study of efficient and rational land management and administration. 2018. Customer Ministry of Agriculture of the Republic of Lithuania.
- Use of the principles of renewable energy sources, sustainable construction and "smart barn" in agricultural production buildings. 2019-2022. Client National Paying Agency under the Ministry of Agriculture.
- Development of typical farm models for sustainable dairy farms, scientific and economic substantiation of recommended solutions. 2019-2020. Client National Paying Agency under the Ministry of Agriculture.
- Use of treated wastewater for irrigation purposes in Algeria. 2019. Customer Embassy of the Republic of Lithuania in the Kingdom of Belgium, the Grand Duchy of Luxembourg and the People's Democratic Republic of Algeria.
- Preparation of a study on creating suitable conditions for fish to migrate through barriers. 2019-2020. Customer Ministry of Environment of the Republic of Lithuania.
- Siltation studies of drainage systems. 2019-2021. Client National Paying Agency under the Ministry of Agriculture.

Compatibility of the research activity plan in the field related to the study field. It is planned to further develop research (according to the priority directions described above with the allocation of University finances for these activities) through the development of various projects and experimental development. For this purpose, the Faculty staff submitted the following applications for research funding in 2020:

- The Lithuanian-Polish DAINA-2 programme administered by LMT (2 applications to be funded by both countries);
- Baltic Sea Cooperation Programme. Project „*Climate adapted agriculture-Baltic Agrifuture. Partners: The County Administrative Board of Ostergotland, Latvian Environment Geology and Meteorology Centre, International Foundation for Rural Development, Belarus*;

- Measures of the EU Funds Investment Operational Programme for 2014–2020 administered by LMT No. 09.3.3-LMT-K-712. Second call for "The development of scientific competence of scientists, other researchers, students through practical scientific activities" "Promotion of internships after doctoral studies" (1 application);
- The Baltic research programmes administered by LMT and funded by the European Economic Area (EEA) countries (Iceland and Liechtenstein) and the Norwegian 2014-2021 financial mechanisms. (2 applications for the Lithuanian call);
- Horizon 2020 programme. Application: „*Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia*";
- Environmental Protection Agency of the Republic of Lithuania. Application "Development of conditions, requirements and recommendations for the design, installation, maintenance and monitoring of the effects of renaturalisation of regulated rivers and retention of pollutants in rivers or their basins that maximally harmonize the needs of environmental protection and land reclamation";
- Application of the LMT priority research programme "Welfare Society" "Utilization of Natural Environment and Cultural Resources in Creating a Welfare Society: Application of Biophilic Design Principles in Lithuanian Regions".
- Measure "Technical Assistance" of the Lithuanian Rural Development Programme for 2014–2020. Field of activity "Lithuanian Rural Engineering Network".

The Faculty currently has 8 doctoral students conducting research in the field of Environmental Engineering (04T). Every year, 1-2 doctoral students are admitted to state-funded places. In 2017, 2 competitive doctoral places financed by LMT were additionally won; in 2018 - 1 place; in 2019 - 1 place.

The focus on research is growing every year. In addition to the pedagogical workload, the teachers of the Faculty also work in a certain position as researchers. In 2017-2019, the Institute of Water Resources Engineering (VIII) had 2.0-2.5 positions, the Institute of Land Use Planning and Geomatics (ŽGI) - 0.5-1.0, the Institute of Hydraulic Engineering (HSII) had no such staff. Since 2020, the Institute of Water Resources Engineering has 3.05 research positions; Institute of Land Use Planning and Geomatics - 2.5; and the Institute of Hydraulic Engineering - 3,05 scientific positions.

45134 Eur have been allocated from the University funds for the development of the Faculty's scientific activities for the year 2020/2021 (16494 Eur for the Hydraulic Engineering Institute; 11762 Eur for the Institute of Land Use Planning and Geomatics; 12595 for the Institute of Water Resources and Engineering). All this contributes to the promotion and development of science and the integration of results into studies.

2.2. Evaluation of the link between the content of studies and the latest developments in science, art and technology

Major scientific achievements and technological developments in the field of water and land engineering in recent years in the world include climate change, application of Nano and smart technologies, modelling of hydrological processes, improvement of drainage and irrigation, water treatment and pollution reduction, sustainable hydropower, flood risk management, land use optimization, application of GIS and remote technologies and development of new aquaculture technologies. These innovations (e.g. damless hydropower generation technologies; intelligent water supply system that fixes pollution and makes decisions to isolate pollution sources by disconnecting water supply parts; application of various new building materials in construction (waste that can be converted into building materials - flax, straw, hemp, tires, glass); denitrification bioreactors in drainage systems, aquaponics) are presented next to the essential issues of the course in the II-IV year studies of each specialization. The evaluated study programmes with their content and taught courses fully correspond to and fulfil these tendencies of scientific and technological development.

2.3. Evaluation of conditions for students to get involved in scientific (applied science, art) activities consistent with their study cycle

All students of Environmental Engineering studies prepare final theses, which include the part of the research review on the analysed topic (literature review). In this way, students are encouraged to take an interest in scientific achievements and technological innovations. When evaluating the efficiency of the Faculty's research activities and allocating funds, the employment of students in ongoing projects is also taken into account. In this way, the involvement of students in the research carried out by the Faculty is encouraged. The laboratories of the Faculty and the equipment in them (this information is provided in detail in other sections) create suitable conditions for students' scientific activities. The employment and/or participation of doctoral students and students of various levels in the research projects carried out by the Faculty brings more budgetary resources to the division, therefore it is beneficial for the institutes.

In 2017, one postgraduate student worked under the project "Adaptation of controlled drainage with denitrification bioreactors for optimization of soil moisture and nutrient transport in drained lands", contract No.V-02-22/16. She prepared the final thesis on the basis of research.

In 2017-2018, four I cycle students worked in the international project *"Investigation of equipment effectiveness and process of hatchery and growing of Salmonids fish"*, contract No. V-06-71 / 17. Project clients - NORAS WATERTECH AS (Norway) and UAB NORAS LT. Studies on the efficiency of the process of incubation and cultivation of the Arctic char and the equipment used have been performed. The technology using zeolite has been investigated to maintain proper water quality. Water quality parameters were monitored and analysed. The results of this project were presented at a remote international conference *"Aquaculture & Marine Biology 2020"*. On the basis of the research, the I cycle student prepared the final thesis and successfully defended it.

In 2018-2019, one I cycle student worked on the project "Investigations of vertical deformations of support columns of the shopping centre building located at Kauno str. 22, Vievis", contract No.V-06-48/18. Based on the results collected during this project, the student prepared a bachelor's final thesis and successfully defended it.

One postgraduate (II cycle) student is currently working on the project "Investigations of drainage system siltation", contract No.MT 19-9, which was launched in 2019.

The Faculty organizes an annual conference *"Young Scientist"*. This event encourages students to engage in research and scientific discussions, as well as enriching their ability to properly present research results and see their practical significance. Although the conference is intended for II cycle students, I cycle students are also invited to participate. In 2017, 31 students participated in this event and read reports; in 2018 - 37; in 2019 - 30; in 2020 – 30, in 2021 - 22 students. The best student reports are later presented at major international scientific events. Also in 2017, 2 students gave presentations at the international conference *"Baltic Surveying"* held in Estonia, 9 - at the conference *"Students on Their Way to Science"* held in Latvia, 1 - at the conference *"Rural Development"* held in Lithuania. In 2018, there were 1, 15 and 0 such students, respectively ("*Rural Development"* did not take place that year). In the same year, 1 student was delegated to read a presentation at a conference at the University of Lviv (Ukraine). In 2019, 2 student presentations were read at the "*Baltic Surveying"* conference and 1 at *"Rural Development"* conference. Due to the *Covid-19* pandemic in 2020, many of the planned conferences did not take place, so there were no students participating in them.

According to the ERASMUS exchange programme in 2017/2018, 1 doctoral student from Belarus came to the Faculty to carry out scientific activities; 2 from Kazakhstan and 1 from Algeria.

Expert recommendations provided during the last external evaluation related to *Links between science and study activities*			
No.	*Recommendation*	*Actions taken by the HEI*	*Comments*
II cycle Land Use Planning study programme			
1.	Researches in the study field	During the reporting period, the Faculty carried out a number of national and international programs and commissioned research	

	should be enhanced, involving academic staff and students in the process.	projects in the field of environmental engineering with state-owned enterprises or economic entities. The teachers of the Institute of Land Use Planning and Geomatics, which coordinates the study programme, participated in (e. g. "Assessment of the condition of reclamation ditches using remote sensing methods", 2016-2017. Client: National Paying Agency under the Ministry of Agriculture of the Republic of Lithuania) or fully implemented and coordinated these research projects, („Scientific Study of Efficient and Rational Land Management and Administration", 2018. Customer: Ministry of Agriculture of the Republic of Lithuania). These projects also involved students, not only postgraduates, but also bachelors, who based on the results of these projects prepared and successfully defended their final theses. The Faculty also carries out so-called budget research, when research is carried out individually or in groups of researchers, including the most active students (especially master's students) in order to orient them towards their possible final theses. The results of such joint research, together with master students, are reflected not only in their successfully defended final theses, but also in the recent increase in the number of scientific articles published jointly by teachers and students. On average, during the reporting year, the number of such joint publications was 5-6.	
2.	Faculty should encourage setting up research teams.	The strategy of Vytautas Magnus University and its implementation measures envisage the formal creation of Science Clusters, but the Faculty has long formed (so far only formally unnamed) research groups (3-5 researchers and doctoral students), whose main areas of research are the sustainable use of agricultural land, the use of unmanned aerial vehicles and space imagery in land use accounting, the impact of land use change on climate change, etc.	
3.	Results of researches should be disseminated among academic staff and students.	Every year, the Faculty holds a scientific-reporting conference, which presents the research of each institute and its importance to the country's economy. Discussions are taking place, future research issues are being discussed. Not only teachers but also students are invited to participate.	

Please provide main results of the self-evaluation in the area of *Links between science and study activities*
Strengths
1. Highly specialized groups of scientists have been formed, able to solve modern scientific tasks according to priority fields of science. 2. A research base meeting modern requirements has been created, and the ability to participate in international and Lithuanian research projects has been developed. 3. Close cooperation with Lithuanian and foreign partners in preparing project applications and implementing projects. 4. Scientific and expert activities, as well as participation in international conferences create preconditions for high-quality studies of Environmental engineering study field. 5. Appropriate conditions have been created for the involvement of students in scientific activities.
Areas for improvement
2. It is necessary to look for opportunities to become more involved in high-level international (e.g. H2020, etc.) and Lithuanian Science Council funded projects. For this purpose, it is planned to use the newly emerging administrative resources of the University (a structural

reorganization of the AA is planned, which will focus more on research managers and strengthening the application preparation functions).

3. There is a need for even closer links with business partners in order to attract financial resources and develop innovative products. It is planned to use specialists from the VMU Communication and Technology Transfer Centre for this purpose.
4. Encourage greater involvement of students in research activities. With the increase of the number of students, these activities will be implemented more quickly.
5. To strive for closer cooperation with other VMU divisions in scientific activities (this activity has not been sufficiently developed after the merger of VMU and ASU in 2019). The intensive integration process, VMU development strategy and structural reforms will allow achieving these goals.

3. STUDENT ADMISSION AND SUPPORT

3.1. Evaluation of the suitability and publicity of student selection and admission criteria and process

Persons with secondary education or equivalent are admitted to the I cycle studies in the field of Environmental Engineering., the admission of applicants to the specialties of *Land Use Planning* n 2017–2018 and *Water and Land Engineering* in 2020 took place according to the general admission to Lithuanian higher education institutions. A ten-point grade scale is used to calculate the competitive score. The hundred-point scale provides the assessments of state matriculation examinations or recalculated school maturity examinations in accordance with the established procedure, or the equivalent annual grades are linearly converted into a scale of 4–10 grades. The competitive score is calculated by summing the weightings of two state exams (Mathematics and Lithuanian language and literature) and two courses (Physics or Chemistry and any course that does not coincide with other courses (but one for which a maturity exam is organized in the current year (- 0.4, other courses - 0.2)). Pupils who have completed secondary education up to and including 2020, are added points for those Olympiads and competitions that were entered in the competition order approved annually by the Minister of Education, Science and Sports of the Republic of Lithuania in the year when the pupil acquired secondary education. There were no entrants with additional points during the period under review. The conditions for admission to the I cycle studies are published on the websites of LAMA BPO[33], VMU[34] and AA[35]. The study programme is also presented at the study fairs in Kaunas and Vilnius, during school visits, and as well as organizing various events for students at the University (“Career Day”, “Measure Profession”, “GIS Day”, “Young Leader Camp”, etc.). For foreigners, the study programme *Water and Land Engineering* is presented on *Educations.com*[36], *Study in* LT[37] and VMU[38] websites and study fairs abroad (such as in India, Nigeria, Uzbekistan, etc.).

Additional studies are organized at the Faculty for those who have graduated from the I cycle (bachelor's) of other fields of engineering studies in other fields or college (professional bachelor's) studies and who wish to study in the II cycle *Land Use Planning* study programme. The scope of additional studies varies from 30 to 60 credits, depending on the type of studies the student has completed. Upon completion of these studies, an academic certificate is issued, which gives the right to enter the II cycle studies.

Persons admitted to the II cycle *Land Use Planning* Studies:

- After graduating from the I cycle (bachelor's) studies in the field of environmental engineering;

[33] Access through the internet: https://bakalauras.lamabpo.lt/ (in LT)

[34] Access through the internet: https://www.vdu.lt/lt/studijos/bakalauro-studijos/bakalauro-studiju-programos/ (in LT)

[35] Access through the internet: https://zua.vdu.lt/fakultetai/vandens-ukio-ir-zemetvarkos-fakultetas/studiju-programos/ (in LT)

[36] Access through the internet: https://www.educations.com/ (in LT)

[37] Access through the internet: https://studyin.lt/ (in LT)

[38] Access through the internet: https://www.vdu.lt/en/studies/degree-studies/ (in LT)

- Having completed the studies of other fields of the I cycle (bachelor's) engineering study fields and have listened to and passed the examinations of study courses in the field of land use planning, the total volume of which is not less than 30 credits;
- Having completed the I cycle (bachelor's) studies in other fields and have listened to and passed examinations in the study courses in the field of land use planning, the total volume of which is not less than 60 credits;
- After completing college (professional bachelor's) studies and additional studies according to the programmes in the field of environmental engineering.

The competitive score (KB) of applicants for the II cycle studies is calculated by summing:

1. The arithmetic weighted average of the final assessments of the courses and practices of the I cycle (bachelor's) study programme or the arithmetic weighted average of the final assessments of the courses and practices of the college study programme and the courses of the additional study programme. The weighting factor - 0.8;
2. Assessment of the I cycle (bachelor's) final reports (final examinations or final theses) or simple arithmetic average of college final reports (final examinations or final theses) and additional studies final examination. The weighting factor - 0.2.

$$KB = \frac{\sum_{i=1}^{n} D_i \cdot K_i}{\sum K_i} \cdot 0{,}8 + BD(BE) \cdot 0{,}2$$

KB - competitive score; *n* - the total number of study courses listed in the diploma supplement and academic certificate of higher education; *i* - the i-th study course entered in the supplement to the diploma of higher education and in the academic certificate; *D* - study course evaluation, scores; *K* - volume of the study course, in credits; *BD (BE)* - assessment of the final thesis or final examination (in case of both - their arithmetic average is taken).

The conditions for admission to the II cycle studies are published on the websites of VMU[39] and AA[40]. The study programme is also presented at study fairs in Kaunas and Vilnius, and during visits to colleges.

In the period of 2017–2020, 30 students were admitted to the state-funded places for the first-cycle studies in the field of Environmental Engineering (in 2017–2018 to the *Land Use Planning* study programme, in 2020 to the *Water and Land Engineering* study programme) (Table 3.1). No students were admitted to non-state funded places due to a competition for engineering studies not taking place in Lithuania. A comparison of different years shows a decrease in the number of admissions due to stricter competition conditions for entrants.

Table 3.1. Distribution of priorities of I cycle studies in the field of *Environmental Engineering*

Year	Number of wishes to study	Of which by the first priority	Number of admitted to study full-time	Number of admitted to study part-time	Falls on one admitted to state-funded studies	
					total wishes	first priority
2017	75	12	16	2	4.17	0.67
2018	47	10	4	3	6.71	1.43
2020	94	35	5	-	18.8	7

Bachelors of the *Land Use Planning* study programme mostly want to study in the II cycle *Land Use Planning* study programme, but there are also graduates of other universities - from VGTU (geodesy), KTU (environmental engineering and technologies), from various colleges (land use planning, geodesy, real estate cadastre) and so on. If they do not meet the requirements for admission, they must take examinations in accordance with the established procedure for those courses which they have not mastered in the I cycle studies, or complete additional studies.

[39] Access through the internet: https://www.vdu.lt/lt/visos-studijos-magistranturos-studijos/ (in LT)

[40] Access through the internet: https://zua.vdu.lt/fakultetai/vandens-ukio-ir-zemetvarkos-fakultetas/studiju-programos/ (in LT)

In 2017–2020, the data of admission to the first year of the II cycle studies of the *Land Use Planning* study programme show that an average of 30 students are admitted to the programme for part-time studies (Table 3.2). The high number of admissions is due to market demand. The receipt of a sufficient number of state-funded places from the Ministry of Education, Science and Sports of the Republic of Lithuania for the high level of scientificity of the Faculty teachers also contributed to this. In 2019 – 2020, the decrease in the number of state-funded places was due to the redistribution of state-funded places within the University. It is expected that a similar number of received state-funded places will remain for the next 5 years. The high number of students who chose to study the *Land Use Planning* programme as their first priority shows their high motivation. Assessing the number of wishes to study in the *Land Use Planning* study programme, it can be stated that every year there is a competition to fill state-funded places. The biggest competition was in 2020. Those who chose to study this programme as their first priority were 1.5 in one place, and in general - 2.2 in one place.

Table 3.2. Distribution of study preferences of the II cycle *Land Use Planning* study programme

Year	Number of wishes to study	Of which by the first priority	Number of admitted to study in state-funded studies	Number of admitted to study in non-state-funded studies	Falls on one admitted to state-funded studies	
					total wishes	first priority
2017	53	33	33	2	1.61	1.00
2018	39	35	32	3	1.22	1.09
2019	40	29	21	10	1.90	1.38
2020	44	30	20	2	2.20	1.50

Analysing the distribution of competitive scores of those admitted to study in the I cycle study programmes in 2017–2020, an increase in competitive scores was recorded, which allows us to state that those who are better prepared for studies enter the programmes (Table 3.3). Meanwhile, in 2017–2020, the competitive scores of those admitted to study in the II cycle study programme remain stably high and increasing in non-state-funded places, which shows that these studies are chosen by motivated and strong students (Table 3.4).

Table 3.3. The lowest, highest, and average admission scores of the students admitted to the I cycle study programmes in the field of *Environmental Engineering*

Year	Admission scores to state-funded places		
	highest	lowest	average
2017	7.46	3.18	4.651
2018	7.64	3.68	4.537
2020	8.39	5.69	6.924

Table 3.4. The lowest, highest, and average admission scores of the students admitted to the second- cycle study programme *Land Use Planning*

Year	Admission scores to state-funded places			Admission scores to non-state-funded places		
	highest	lowest	average	highest	lowest	average
2017	9.466	6.866	8.003	7.005	6.995	7.000
2018	9.050	6.802	8.008	7.800	6.378	6.904
2019	9.140	7.980	8.202	8.690	7.310	7.786
2020	9.410	7.900	8.196	7.980	6.720	7.795

3.2. Evaluation of the procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application

In 2017, the Ministry of Education, Science and Sport of the Republic of Lithuania (LR) granted VMU the right to carry out academic recognition of education and qualifications related to higher education and acquired in the framework of education programmes of foreign states and international organizations. Recognition of foreign qualifications at VMU is done centrally in the International Cooperation Department in accordance with resolutions and regulations of LR, following information provided by the Centre for Quality Assessment in Higher Education, as well as general or individual (in the absence of general) recommendations and in consultation with the responsible staff from the Centre for Quality Assessment in Higher Education. Every year the rules for admission of foreign citizens to VMU are updated and approved, and they outline the assessment of foreign qualifications, its application, documentation and evaluation. Each year, the University reports to the Centre for Quality Assessment in Higher Education about the decisions that are made on academic recognition.

Recognition of partial learning outcomes is regulated by VMU Description of the Procedure for Recognition of Learning Outcomes[41]. This procedure is performed in a decentralized way at the University, and it is organised by the Faculty or the initial assessment is done by the International Cooperation Department. The learning achievements of a person who has studied at another Lithuanian or foreign higher education institution are recognised by converting the acquired evaluation into ECTS according to pre-agreed equivalents, if there is no violation of the requirements of the contract or other document.

Recognition of partial studies can be carried out for current university students and newly enrolled.

Current students participating in study exchange programmes agree on the study plan with VMU before leaving for a partner university. Learning outcomes acquired during part-time studies in accordance with the agreed study plan, should be recognised upon an academic certificate from the higher education institution where the student has been studying. If the student has been for a visit for several semesters, certificates must be obtained and credited after each semester. This ensures the recognition of partial studies after returning from another university.

Newly enrolled students, who have completed part of their studies at another university and apply for recognition, firstly are asked to submit their documents to the International Cooperation Department. The list of requested documents corresponds to the documents that newly enrolled students have to submit when entering the University. Only an academic certificate or other document certifying study courses of another institution should be attached additionally. After evaluating the available documents, the level and other information of the institution where the partial education was obtained, the documents are transmitted to the faculty responsible person for recognising learning outcomes. The faculty assesses the correspondence of the study course content and its volume.

Principles and processes of recognition of competences acquired in non-formal and informal way are regulated by VMU Study regulations; Description of the Procedure for Assessment and Recognition of Competences acquired through Non-Formal and Informal Education[42]; VMU Description of Organization of Non-formal Adult Education[43]. Individuals may apply for the assessment of competences acquired in work activities or voluntary work, internships, courses, seminars, projects, etc.; while self-learning or at leisure time. Competences acquired by the candidate through non-formal and informal education can comply with the part of the appropriate study programme or separate courses.

[41] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2019/12/VDU-studij%C5%B3-rezultat%C5%B3-%C4%AFskaitymo-tvarka-1.pdf (in LT)
[42] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2019/12/Description-of-Procedure-non-formal-ENG.pdf (in EN)
[43] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2019/09/Neformaliojo-svietimo-organizavimo-tvarkos-aprasas-2019-002.pdf (in LT)

If during the assessment it is determined that student's informal and non-formal learning outcomes corresponds to the learning outcomes formulated in the study course of the study programme, the study course (-s) are recognised.

In the period of 2017–2020, there were 10 cases of crediting of partial study results abroad (2017 - 6, 2018 - 4), there were no cases of non-crediting, as students going abroad for partial studies coordinate their study plan with the Faculty administration. Results would not be credited only if there was a significant difference between the study results obtained abroad and the study programme. Recognition of previous and other learning (for example, acquired in other Lithuanian higher education institutions) takes place according to the content and scope of the study course. There were 63 cases of such creditings (2018 - 2, 2019 - 39, 2020 - 22). All credits were done only for I cycle students.

3.3. Evaluation of conditions for ensuring academic mobility of students

All VMU students are provided with possibilities to use Erasmus+ opportunities:

1. To study for a semester or an academic year at one of 516 partner universities in the EU or EEA /candidate countries as well as go outside the EU to one of 99 partner institutions. About 200 VMU students take the advantage of this opportunity per year.
2. To participate in Erasmus + internship lasting from 2 to 12 months. Graduate students can also participate in this internship programme within 12 months after their graduation. About 150 VMU students and graduates take the advantage of this opportunity per year.

VMU students are also encouraged to participate in academic exchange programmes:

1. They can go for exchange with mobility grant or with scholarships from partner universities to one of 206 partner countries outside the EU/EEA for a semester or for academic year. About 40 VMU students use this opportunity per year.
2. Students can participate in the internship from 1 to 3 months with VMU mobility grant in companies/organizations outside the EU/ EEA. About 10 VMU students take the advantage of this opportunity per year.
3. Other possibilities are provided, for example, for internships lasting from 2 to 6 months in Lithuanian education schools or Lithuanian communities and Lithuanian centres abroad (about 15 VMU students and graduates take advantage of this opportunity per year), for part-time studies or internship receiving Mockunu name scholarship (1-3 students take advantage of this opportunity per year); etc.

Information about student mobility possibilities is announced by various channels: VMU International Cooperation Department and the Faculty/Academy international coordinator provide students with information about studies and placement abroad, VMU Erasmus days are organised, Erasmus+ competitions are posted on VMU website www.vdu.lt, intranet (Outlook), social media, etc.

In the period 2017-2020, the number of students who chose mobility programmes is relatively small. In cycle I, only three students chose part-time studies abroad, while in cycle II there were no such students (Table 3.5). Such a small number was determined by the high demand for students of this specialty in the Lithuanian labour market. Many students work in their free time and find it difficult to go to a foreign higher education institution for part-time studies for at least one semester. Much more active students in short-term mobility - 5 students went to foreign higher education institutions for one-week courses in 2017, 20 in 2018, and 19 in 2019. In this case, the students went to study under the BOVA and ERASMUS+ exchange programmes.

Table 3.5. The number of I cycle students who have left for part-time field studies or practice during their studies:

Study year	The number of all students in the field	The number of students who have left for studies or practice
2017-2018	156	2

2018-2018	142	1
2019-2020	69	-

Foreign students were also interested in the studies carried out at the Faculty. In the period of 2017–2020, 16 students (11 I cycle and 5 II cycle) came for partial studies using the ERASMUS+ programme.

3.4. Assessment of the suitability, adequacy and effectiveness of the academic, financial, social, psychological and personal support provided to the students of the field

Academic student support covers several aspects:
1) easily accessible and timely information on: a) the studies, including information, which is useful to the students choosing their study courses according to their individual study needs and preferences; b) University's information (Rector's orders, rules, mobility opportunities, student support information, career possibilities, etc.) in order to keep in line with institutional issues and opportunities; c) extracurricular University's activities (events, meetings, seminars, leisure and entertainment, etc.) in order to provide opportunities for students' personal development;
2) regular teachers' consultations to clarify topics of study courses or assignments, evaluate students' learning progress, provide and gather feedback both for students and teachers, etc.

Information on the studies is provided during various communication channels and means. All VMU students have free access to the University's intranet system Moodle (virtual learning environment for publishing information on courses, methodical material, etc.) for communication, cooperation and information exchange purposes. Besides, frequently used channels are the University website, University and Faculty Facebook, newsletters. The necessary information is provided in-time, allowing the students to plan their study schedules.

The Dean, Chancellors, their Department Head and members of the Programme committee periodically meet with the students and discuss current, important study and career opportunities related issues. The staff of the Faculty, Academy administration office is available daily for consulting students on various academic and study organization issues. Examination results are discussed with the students during specially appointed time; the students are informed about the time of the meeting during the examination.

According to the VMU Study Regulations, every teacher spends certain amount of hours per semester consulting students on their homework, individual or group assignments and other course-related issues. Consulting is performed face-to-face during officially announced hours, as well as using different on-line means, such as Skype, e-mail, discussion forums, other communication environments and tools that are convenient for teachers and students.

Financial support for students is regulated by the Description of Procedures for Tax Exemption and Compensation[44]; and the Description of Procedure for Compensation for Tuition Fees[45].

Upon a reasoned request from a student, the University may postpone the payment of the tuition fee and/or the accommodation fee or allow this fee to be paid in a more extended period, for several times. In such cases, the student writes a reasoned request to the Rector, explaining the reasons why the University should allow the student to pay under specific conditions. The application for the tuition fee is submitted to the Dean, the Chancellor, and the accommodation fee is submitted to the Department of Student Affairs. During the period of 2017-2020, no request was received for deferral or payment in instalments of the fee for studies or accommodation. For the University students, attending scientific conferences, seminars or other events to represent the University, for collaborative or other purposes related to the University, VMU may reimburse the whole or part of the expenses in accordance with the Description of Procedures for Tax Exemption and Compensation.

[44] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2015/01/Mokestini%C5%B3-lengvat%C5%B3-teikimo-ir-kompensacij%C5%B3-skyrimo-tvarkos-apra%C5%A1as.pdf (in LT).
[45] Access throught the internet: https://www.vdu.lt/wp-content/uploads/2018/09/KK-tvarkos-apra%C5%A1as.pdf (in LT).

Student social support is coordinated by VMU Student Affairs Department that manage students' accommodation at the University dormitories, administrate student social and motivational scholarships, accommodation fees and release from tuition in specific cases.

Accommodation service is provided for VMU students, and they have opportunities to settle in the University dormitories. For some students, based on their social status, the cost of accommodation is reduced. Social scholarships are provided for students regarding their social situation, motivational scholarships are provided regarding students' academic achievements. Moreover, VMU has established patronage scholarships to support student activities, the University has also set VMU honour scholarships, Rector's nominal scholarships, scholarships by various programmes, etc. In 2020, 5 I cycle students received incentive scholarships. Incentive scholarships were awarded by the Ministry of Agriculture of the Republic of Lithuania in order to attract more students to study programmes related to agricultural activities. Also, by encouraging students to study in the II cycle studies, the University applies discounts to those who have not entered the State-funded places through a competition. In the period of 2017–2020, 50% discount for studies was granted in 8 cases (2019 - 4, 2020 - 4), 100% discount - in 18 cases (2017 - 1, 2018 - 2, 2019 - 7, 2020 - 8).

VMU Student Council also takes care for student social support. It represents the interests of students and enhance their cultural and social activities.

Upon the need, students can receive free-of-charge counselling of a psychologist at VMU Psychology Clinics in individual meetings or online.

Students are supported in modelling their career plans. VMU Career Centre of Student Affairs Department regularly organize seminars and provide consultations on career planning issues. Regularly, at least once a year, face-to-face meetings with the Faculty, Academy Alumni members are organized, where graduates introduce their work experience, relevance of acquired knowledge and skills. The University and the Faculty, Academy have cooperation agreements with different social partners, including commitments to inform about job positions. Announcements for open job positions are placed on the Faculty and Career Centre websites.

Other support opportunities: support for the activities of student organisations is provided through project competitions; students with special needs have all the conditions for studies; there are individual consultations given due to the studies choices. All the measures are intended to create favourable study conditions and reduce the number of drop-out students, ensuring the quality of studies.

3.5. Evaluation of the sufficiency of study information and student counselling

Information about various activities related to the study process is delivered by different means to the students. First year students of first study cycle receive the most important information in the special annual event "Introduction to Studies". It is organized according to relevant topics that are discussed on different days: Faculty Day, Knowledge and Foreign Language Day, Opportunity Day, Registration Day, Sports, Wellness and Arts Day. The introductory week includes faculty, academy and staff presentations, foreign language options, opportunities to study abroad, Student Council and academic clubs' presentations, information about the use of library resources, campus facilities, etc. During the event, students get to know the campus environment, faculty, academy and senior students. On the Faculty Day, first-year students are introduced with the chosen study programme in more detail. These measures enhance the motivation of new students and encourage them to reach high learning achievements.

Students can receive more information about the study programme at the VMU website https://www.vdu.lt/lt/study/programme/show/334/, https://www.vdu.lt/lt/study/programme/show/335/ https://www.vdu.lt/lt/study/programme/show/336/ (students of I cycle) and https://www.vdu.lt/lt/study/programme/show/312/ (students of II cycle). They also have an opportunity to get acquainted with full descriptions of study courses of the chosen study programme or an optional / alternative study courses via *Moodle* platform. Study course descriptions includes the

information of the aim and expected learning outcomes of the study course as well as their coherence with topics, study and assessment methods. The system of evaluation, basic and additional literature are also presented in the course descriptions.

In order to provide students with timely information about studies, they receive personalized emails. All VMU students are provided with a personal registered e-mail box. Students use a specially designed portal https://studentas.vdu.lt/login.php?lang=EN where they can receive informational messages and perform certain actions. The University has a centralized Student Centre to support them by direct contacts or calling, emailing by email studentas@vdu.lt or contacting through social media. In Facebook social network a special account for VMU students has been created, which publishes relevant information for students. General information and news are also posted at VMU website: http://vdu.lt. VMU Student Affairs Department provides counselling, dealing with student issues related to accommodation, scholarships, benefits, career counselling, etc.

Every full-time VMU employee is given 20 hours of students counselling per semester. The teacher chooses a specific time of the week for admitting students for counselling.

Expert recommendations provided during the last external evaluation related to *Student admission and support*			
Eil. Nr.	*Recommendation*	*Actions taken by the HEI*	*Comments*
I cycle Land Use Planning study programme			
1.	Include courses taught in foreign languages and attract students from other countries (under *Erasmus* or other exchange programmes). No foreign languages are currently offered in the course syllabus.	By the time of accession in 2020 the study programme was fully prepared to be taught in English. The individual courses of this study programme are adapted to be taught to students coming to study under the *Erasmus+* programme. From the 2020/2021 academic year, students can allocate from 12 to 24 ECTS for various foreign languages, depending on the study courses they choose.	Due to the Covid-19 pandemic, students from abroad were not accepted, although there was interest in this study programme.
2.	Define proposals for action designed to increase new-student numbers. Some of the most important aspects might include: greater international projection for the programme, new subjects of special interest, an analysis of full part-time students, etc.	There is an active participation in disseminating information about the study programme in schools and in study fairs that take place several times a year. The schools are presented with the study programmes implemented at the university, including the study programme of *Water and Land Engineering* (in previous years *Land Use Planning*). Open days are organized at the University several times a year, during which schoolchildren are also introduced to the study programmes at the University, and cognitive lectures on courses related to study programmes are given as well. There is an active participation in the nationwide events "Spaceship Earth", "Researchers' Night" and others. During these events, schoolchildren come to the University, they are introduced to study opportunities, research activities and the latest scientific equipment available. There is close cooperation with Vytautas Magnus University Ugnė Karvelis Gymnasium. Upon	For Covid-19, contact marketing has not taken place in recent years. The study programme is advertised remotely. A virtual open day was organized and targeted lectures for future students were prepared.

		arrival of the schoolchildren at the Faculty, general lessons on the course of "Geography" are conducted.	
II cycle study programme Land Use Planning			
3.	Mobility of teachers as well of students should be improved.	Both teachers and students are regularly encouraged to participate in the *Erasmus+* programme, NOVA/BOVA or other international courses, as well as to go on internships and seminars abroad. 5 II cycle students took advantage of this opportunity during the reporting period.	
4.	Admission requirements should be reviewed to make them clear.	Admission conditions have been updated and are published on VMU and AA websites. The study programme is also presented at study fairs in Kaunas and Vilnius, and during visits to colleges.	For Covid-19, contact marketing has not taken place in recent years. The study programme is advertised remotely. A virtual open day was organized to participate in college career days.

Please provide main results of the self-evaluation in the area of
Student admission and support

Strengths

1. There is a great shortage of specialists of the I cycle study programme *Water and Land Engineering* in the Lithuanian labour market, which is also acknowledged by the Ministry of Agriculture of the Republic of Lithuania when awarding monthly incentive scholarships to those entering this specialty.
2. The II cycle study programme *Land Use Planning* is designed to prepare specialists for a well-developed labour market, therefore it is attractive for those choosing a field of study and professional activity. Due to the large number of applicants and their high readiness, a competition is created every year for state-funded places for these studies.
3. The University provides students with a wide range of options when choosing a mobility programme. Students can choose from 516 partner institutions in the European Union and from 99 partner institutions outside the European Union (in Europe, North America, Asia and Africa).

Areas for improvement

1. Admission to the I cycle study programme *Water and Land Engineering* has started in the 2020/2021 academic year. Due to the pandemic situation, this study programme was not widely advertised to potential students from Lithuania and abroad. This must be done in the near future in order to gather significantly larger numbers of students. To achieve this goal, the marketing plan of Vytautas Magnus University Agriculture Academy has been updated, the implementation of which should increase the number of admissions to the I cycle studies of this programme
2. Due to the significant decrease in the number of I cycle students in this field, the mobility of students in the field has decreased, as II cycle students do not choose long-term mobility programmes due to objective reasons (entry into the labour market during their studies).

Therefore, I and II cycle students should be encouraged to choose at least short-term (one-week) mobility programmes by contact or distance.

4. STUDYING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT

4.1. Evaluation of the teaching and learning process that enables to take into account the needs of the students and enable them to achieve the intended learning outcomes

I and II cycle studies in the field of environmental engineering are carried out in full-time and part-time studies. I cycle studies are organized according to study session schedules, in which study courses are arranged on working days and weekends (full-time studies) or sessions and weekends (part-time studies). The II cycle programme is carried out by organizing the study process on the principle of intensive contact work. This method of study was chosen taking into account the students' wish to combine studies with work activities. Auditory work is organized in training sessions, which take place twice a semester for two to three weeks at the time provided in the study schedules. In the spring semester of the 2019/2020 academic year, after the quarantine was announced in Lithuania, studies, consultations, defence of final theses, and exams were held remotely. All study material has been transferred to the Moodle environment, which is acceptable to both students and Faculty. This method of learning is also actively used today, as it is highly valued by students for adapting to their needs.

In the I cycle study programmes *Water and Land Engineering* and *Land Use Planning*, the study (teaching and study) and assessment methods are presented in detail in the descriptions of study courses, which are also available in the Moodle environment. Different study methods are selected in different forms of study courses.

Study methods are often used in *lectures* - narration, interpretation, illustration of examples, document analysis, case analysis, analysis of problematic examples and questions, video review, summary of information, etc. (e.g. Real Estate Cadastre and Register, Fundamentals of Land Use Planning Design, Engineering Geodesy, Water Preparation and Supply for Aquaculture, Hydraulic Structures, etc.); study methods used in *laboratory works* - analysis and interpretation of the obtained results, participation in the discussion, decision-making, performance of tests, observation, preparation and presentation of reports, etc. (e.g. Real Estate Cadastre and Register, Land and Structures Cadastre coursework, Geodetic Measurements, Water Preparation and Supply for Aquaculture, Hydraulics, etc.); study methods used in *practical works* - solution of tasks presented during the practical works, design and case analysis, interpretation and solution of tasks, etc. (e.g. Land Use Planning Design coursework, Land and Structures Cadastre coursework, Land Law, Cartography, Aquaculture Engineering Solutions, Water Supply and Sewerage Networks project, etc.); *practice* study methods - interpretation, discussions, formulation of practical tasks or problems and demonstration of solutions, analysis of professional activity, preparation and presentation of reports, etc. (e.g. Geodetic Measurement Practice, Practice of Professional, Engineering Research Practice, Aquaculture Fundamentals Practice).

The following evaluation methods are most commonly used: testing or written examination, monitoring and evaluation of discussions, monitoring and evaluation of practical tasks and laboratory work, monitoring and evaluation of presentation, evaluation of a prepared individual task, evaluation of case studies; monitoring and evaluation of project presentations, monitoring and evaluation of practical tasks performed during the practice.

In the II cycle study programme *Land Use Planning*, the study (teaching and study) and evaluation methods applied during the study are also presented in the descriptions of study courses. Different study methods are selected in different forms of study courses.

Study methods are often used in the *lecture* - interpretation, illustration of examples, analysis of scientific sources and special literature, review of videos, discussion, summary of information, etc. (e.g. Real Estate Valuation and Market Analysis, Digital Photogrammetry, Land Planning

Assessment Impact Solutions, Urban Planning); study methods used in *seminars* - analysis of problematic examples and questions, performance and summary of tasks, counselling, analysis of problematic cases, expression of competent opinion, discussion (e.g. Restoration of Damaged Aquatic Ecosystems, Decision Support Systems in Water Engineering, Management of Protected Areas Landscape, etc.); study methods used in the *practical works* - design and case analysis, application of special computer programme packages, studies and solution of problem tasks, etc. (e.g. Regulation of Land Planning, Landscape Architecture, Landscape Ecology, Rural Development and Land Consolidation, etc.)

The most commonly used evaluation methods are written survey, observation of discussions, observation of practical tasks, evaluation of completed tasks, evaluation of report/case analysis, evaluation of analysis of problem examples, monitoring and evaluation of individual work presentation, evaluation of decision making.

Hours for students' independent work are provided in the study course description. At the beginning of the semester, each teacher introduces the students to the independent learning workflow plan, and consults them during the semester (by e-mail, in the Moodle environment, contact consultations). Independent learning in the programme consists of students' preparation for laboratory and practical work, seminars, individual tasks and their presentation. Independent work of students (additional studies of the provided material) allows them to supplement the knowledge acquired during lectures, laboratory work and exercises independently. The student acquires the ability to independently use teaching aids and apply modern information technologies, independently analyse the material, critically evaluate it, draw conclusions. In order to achieve the result, consistent work during the semester is provided and monitored by providing feedback.

Study programmes flexibly apply teaching/learning methods that encourage the maximum learner to become involved in the learning process and become active participant in the study process. It very much depends on the experience of the teacher and the achievement of a formal result. The methods of evaluation of achievements are chosen so that in all cases the student understands the objectivity of evaluation.

The accumulative system for the assessment of learning achievements is applied in the University. Students' learning achievements are assessed in midterms, another intermediate work and examination or defence of students' projects. The final mark integrates the intermediate work assessment and examination marks. The examination mark makes 30-60% of the final mark. The structure of the accumulative system is presented in the description of each study course (e.g. I cycle study programme *Water and Land Engineering* study course *Engineering Geodesy* cumulative score structure: laboratory works - 30%, control (colloquium) - 20%, exam - 50%).

Graduates of the programmes can continue their studies in master's or doctoral programmes in the field of engineering.

4.2. Evaluation of conditions ensuring access to study for socially vulnerable groups and students with special needs

Socially vulnerable groups and students with special needs are given the opportunity to study according to an individual study schedule. Studies according to the individual study schedule are regulated by VMU Description of the Procedure for Providing the Individual Study Schedule. Students with special needs, if necessary, are consulted remotely using modern video tools, the teaching material is placed in a virtual environment. There were no students for whom an individual study plan would be developed during the evaluation period.

Socially vulnerable groups (orphans, people with disabilities, students from large families and low-income families) receive different discounts for tuition or dormitory fees, scholarships are provided for these students.

Students with disabilities are provided with conditions to park cars near the University building; the entrance to the buildings is constantly maintained and updated; equipment for disabled people in libraries, creating jobs for them; classrooms are equipped with furniture adapted for students with

special needs; students have the opportunity to stay only in dormitory rooms adapted for them, if necessary, with an accompanying person; the study process is organized according to the individual needs of students; disability education campaigns; data on students with disabilities are integrated into the databases of the systems, thus facilitating the whole study process of students with disabilities. The University organizes various events for the disabled. The buildings of the AA campus are either fully adapted for people with mobility and visual impairments, as all buildings are equipped with elevators and toilets for people with special mobility needs. All buildings are equipped with surveillance cameras, and in the event of an unforeseen event with a person with special needs, a quick response is possible.

Data on the number of students belonging to socially vulnerable groups enrolled in Environmental Engineering programmes during the evaluation period are presented in Table 4.1.

Table 4.1. Number of students belonging to socially vulnerable groups who entered the field of Environmental Engineering (II cycle study programme *Land Use Planning*) in the period 2017-2020

	2017	2018	2019
Number of students belonging to socially vulnerable groups	2	1	1

4.3. Evaluation of the systematic nature of the monitoring of student study progress and feedback to students to promote self-assessment and subsequent planning of study progress

The monitoring of student learning progress is regulated by VMU Study Regulations and the Description of Procedure for Student Learning Achievement Monitoring and Assistance[46]. Monitoring of learning achievements and delivery of assistance covers interrelated processes, which include the following: 1. An analysis of student enrolment in studies and learning situation in study courses. 2. An analysis of the reasons for the students' non-participation in interim and final examinations. 3. An analysis of intermediate and final evaluation of students. 4. Implementation of preventive measures to manage student failure and improvement of organisation of studies.

Monitoring of student achievement begins each semester when a student registers for a study or course. Discussions of learning outcomes help students track study progress.

The University departments perform monitoring of learning achievements regularly, and students themselves are invited to make self-monitoring of their progress in studies and follow the processes of studies: to register for studies, to amend their study plans, to observe evaluations of their own learning and make improvements, to get acquainted with results of surveys for quality improvements, etc.

Monitoring of students' study progress is carried out through the study information system Studis, as well as through the distance learning system *Moodle* (course teachers regularly fill in the course progress bar), and monitoring results are used for timely analysis and elimination of causes (discussions about reasons with vice dean and teacher). In case of a student's delay from the payment plans, an individual payment schedule is made by mutual agreement. In the event of a student falling behind on evaluation plans, an individual evaluation schedule is drawn up by mutual agreement, but these cases are exceptional, for justifiable reasons, such as illness or the like.

There were no students studying in the programs according to the individual schedule during the assessment period.

Student achievement is checked consistently during each semester, defending practical, laboratory work, and other assignments. At the end of the semester, a course exam is held. The correspondence of the student's knowledge and abilities to the results of the study course is checked. The University applies a cumulative score criterion system of evaluation of study achievements, using a ten-point grading scale. The cumulative evaluation system motivates students to progress not only during the exam session, but consistently throughout the semester.

[46] Access through the internet: https://www.vdu.lt/wp-content/uploads/2015/01/Student%C5%B3-studijavimo-pasiekim%C5%B3-steb%C4%97senos-ir-pagalbos-teikimo-tvarka-.pdf (in LT).

The average progress of I cycle full-time students reaches 8.40 points (Table 4.2), similar progress is observed during all studies. It can be concluded that students do not lose interest and motivation during all studies and do not question their choice. During the first exam, the most negative (<5 points) students were recorded in the 4th study year (6 students). This can be explained by the fact that fourth year students are involved in work activities.

The average progress of I cycle part-time students reaches 6.99 points in 2017-2020 (Table 4.2). Fluctuations in progress during part-time studies can be attributed to the fact that students are engaged in work activities. The number of students who were negatively evaluated (<5 points) during the first exam was recorded in the 6th study year (14 students) (Table 4.2).

Table 4.2. The average progress of students studying in the I cycle study programme *Land Use Planning* in 2017-2020

Course	Progress rate in points			Number of students	Number of non-advanced students (evaluation <5 points), units *
	Autumn semester	Spring semester	Average		
I cycle *Land Use Planning* study programme, full-time studies					
I	8.30	8.76	8.53	20	2
II	8.41	8.51	8.46	38	4
III	8.37	8.29	8.33	50	4
IV	8.22	8.35	8.29	57	6
I cycle *Land Use Planning* study programme, part-time studies					
I	6.02	5.66	5.85	5	4
II	7.45	8.43	7.94	16	6
III	6.12	7.67	6.89	14	3
IV	7.93	8.20	8.06	14	1
V	5.53	5.92	5.72	67	4
VI	6.79	8.21	7.50	51	14

*- failing the exam during the first pass in the autumn/spring semester

The average evaluation of students in the autumn semester of the programme *Water Resources Engineering* is 7,067. Number of advanced students (evaluation <5 points) - 0.

The average progress of II cycle full-time students is 7.94 points (Table 4.3). In the second year of the master's degree, students are more involved in work activities, therefore the study results deteriorate. This is also shown by the number of students (16 students) who were negatively evaluated during the first exam (<5 points), while in the first year only 3 students were evaluated as negative during the first exam.

The average progress of II cycle part-time students is 8.34 points (Table 4.3). Students who are negatively evaluated (<5 points) during the first exam are mostly recorded in the second year of studies, as most second-year students work.

Table 4.3. Average progress of students studying in the II cycle study programme *Land Use Planning* in 2017-2020

Course	Progress rate in points			Number of students	Number of non-advanced students (evaluation <5 points), units *
	Autumn semester	Spring semester	Average		
II cycle *Land Use Planning* study programme, full-time studies					
I	8.21	8.02	8.12	35	3
II	7.48	8.05	7.76	48	16
II cycle *Land Use Planning* study programme, part-time studies					
I	7.86	7.56	7.71	94	8
II	8.52	8.53	8.52	82	11
III	8.69	8.90	8.79	76	5

*- failing the exam during the first pass in the autumn/spring semester

The procedure for VMU students, listeners, graduates' surveys on the quality of studies is established by the description of the procedure for improving the quality[47] of VMU study feedback studies, approved by the VMU Rector in 2019. Study feedback, which is an integral part of monitoring study progress, consists of a survey conducted at the University on a study course, a survey on study practices, and a survey of graduates.

4.4. Evaluation of the feedback provided to students in the course of the studies to promote self-assessment and subsequent planning of study progress

Each semester, students who did not participate in the intermediate assessments and received negative evaluations are recorded, as well as study courses with a level of non-progress of more than 30%. The summarized results are presented at the Dean's office, Council and Rector's office. They are used to improve the implementation and administration of studies, to plan student assistance. Teachers teaching in traditional, distance and blended learning ways enter the evaluations in the student achievement evaluation information system within 14 days after the intermediate assessments and inform the responsible employee of the Faculty administration about the students who did not participate in the intermediate assessments. When teaching in a distance and blend learning way at the beginning of studies in a distance learning environment, students are instructed in the conditions of completion of the study course, using the tools of monitoring study progress. The responsible member of the Faculty administration contacts out-of-progress students, finds out the reasons for their progress, and suggests and organizes solutions, such as teacher consultations. The results of student progress monitoring are also used by teachers to plan measures to improve the course and increase student progress.

Examinations and midterm tests takes place remotely or in an auditorium in written form, their tasks are the same or of equal value for all examinees. The results of intermediate work assessment are announced and discussed during lectures within the period of 2 weeks. After the written examination, the final results are announced on the University intranet within the period of three working days and afterwards they are discussed in the student group.

4.5. Evaluation of employability of graduates and graduate career tracking in the study field

The University has an active VMU Alumni Club whose main aim is to unite VMU alumni and maintain close relations with the University. Every year members of the club attend the University events organized to develop students' professional and employability skills as well as get acquainted with career opportunities. Alumni Club members also organize club meetings, various events (lectures, discussions, informal meetings, field trips, excursions to various companies employing university alumni, etc.), actively participate as consultants and experts in study programme committees, study quality assessment groups. Each year, with the help of the University, the club organizes Alumni Day in order to bring together VMU alumni.

VMU Academy of Agriculture has their Alumni club, whose main activities are: representation of VMU Academy of Agriculture to students and members of agrobusiness; promotion of partnership between VMU Academy of Agriculture and alumni by establishing new regional and professional departments; participation in student events; assisting students in planning their careers and employment. Regional AA *Alumni* divisions have been established and are being developed.

In order to ensure the quality of studies and provide career planning service that meet the needs of the students, the University monitors the employment and career of VMU graduates. The main sources of information are: VMU alumni survey, statistics provided by the Employment Service and statistics provided by the Government Strategic Analysis Centre.

[47] Access through the internet: https://www.vdu.lt/wp-content/uploads/2019/12/VDU_griztamojo_rysio_aprasas_2019-11-20_redakcija.pdf (in LT)

Each year, on May and June months, VMU Career Centre performs an online survey for alumni, one year after their graduation. The focus of attention is their current work situation. Those graduates, who are not working, are asked if they have work experience and if they are looking for a job. All graduates (employed and unemployed) are requested to give their opinion on how much they are satisfied with their current career situation and what has been most useful while preparing for their career at the University. Alumni are also asked to evaluate VMU's contribution to their preparation for labour market. Summarized survey results are published in the University website www.vdu.lt and on the Career Centre website[48]. A more comprehensive analysis of the survey data is available on the University intranet: Outlook Public Folders → Career Monitoring.

On the basis of the cooperation agreement with the Employment Service, signed on the 6th of November in 2019, VMU will get statistical information about VMU graduates registered for a job search. Information will be provided twice per year, i.e. 12 months and 15 months after their graduation.

The Centre for Strategic Analysis of the Government (STRATA), the career portal karjera.lt and the magazine "Reitingai" do not provide data on the employment of graduates of the analysed study programmes 12 months after graduation.

Sociological research company *Prime consulting*, commissioned by the magazine "Reitingai", in 2018, 2019 and 2020 surveyed employers in all regions (2192, 2194 and 2200, respectively) about graduates of individual higher education institutions and fields of study who had completed programmes in the field of Environmental Engineering. Employers were asked which alumni of higher education institutions and fields of study work in their companies, institutions and organizations, and were asked to assess the quality of readiness of alumni of these fields and different universities (not assessed separately by study levels). Employers were able to single out one or two universities whose graduates had the knowledge and skills that best satisfied them. In 2018 22%, in 2019 25% and in 2020 28% of the surveyed employers indicated that they are most satisfied with the knowledge and skills acquired by graduates of Vytautas Magnus University in the field of Environmental Engineering. This reveals the favourable attitude of employers towards the preparation of graduates of the studies discussed in the self-assessment for work activities. The data are presented in Table 4.4.

Table 4.4. Employers' opinion on graduates of study fields, taken from the rankings of university study fields in 2018, 2019 and 2020 presented in the magazine "Reitingai".

Study field: Environmental Engineering					
Employers' opinion about alumni (%)					
I cycle			II cycle		
In 2020	In 2019	In 2018	In 2020	In 2019	In 2018
28	25	22	28	25	22

Information on the quality of preparation for the labour market by interviewing students who have graduated from the I cycle study programme *Land Use Planning* 12 months after graduation is provided in Table 4.5. The survey data show that the quality of readiness for work "More good" and "Good" is assessed by the absolute majority of students who graduated in 2019 (N = 11) and 2020 (N = 22). Twelve months after graduation, only 1 graduate participated in the survey in 2018 and 4 graduates in 2019, who also rated the readiness for the labour market as "Good".

Table 4.5. Data of the survey of students graduating from the I cycle study programme *Land Use Planning* in 2019 and 2020 (EXIT) on how respondents assess the contribution of VMU to their preparation for the labour market

How do you assess VMU's contribution to your preparation for the labour market?	In 2019 (N =11)	In 2020 (N=22)
I don't know, it's hard to say (%/number)	9.09% (1)	9.09% (2)

[48] Access through the internet: http://karjera.vdu.lt/apie-mus/apklausu-rezultatai/ (in LT)

Bad (%/number)	0%	0%
More bad (%/number)	0%	13.64% (3)
More good (%/number)	45.45% (5)	22.73% (5)
Good (%/number)	45.45% (5)	64.55% (12)

Information on the quality of preparation for the labour market by interviewing students who have completed the II cycle study programme *Land Use Planning* studies 12 months after graduation is provided in Table 4.6. The survey data show that the quality of readiness for work "More good" and "Good" is assessed by the absolute majority of students graduating in 2019 (N = 20) and 2020 (N = 29). Twelve months after graduation, only 3 graduates participated in the survey in 2018 and 6 graduates in 2019.

Table 4.6. Data of the survey of students graduating from studies in the II cycle in 2019 and 2020 (EXIT) on how respondents assess the contribution of VMU to their preparation for the labour market *(Assessment scale: 4 - good, 3 - more good, 2 - more bad, 1 - bad, 0 - I don't know, it's hard to say)*

How do you assess VMU's contribution to your preparation for the labour market?	In 2019 (N =20)	In 2020 (N=29)
I don't know, it's hard to say (%/number)	30% (6)	13.79% (4)
Bad (%/number)	0%	0%
More bad (%/number)	0%	3.45% (1)
More good (%/number)	25% (5)	13.79% (4)
Good (%/number)	45% (9)	68.97% (20)

There were no graduates of the I cycle study programme *Water and Land Engineering*.

Information on the quality of preparation for the labour market after interviewing students graduating from the I cycle studies and 12 months after graduation is provided in Table 4.7. The survey data show that the quality of readiness for work "More good" and "Good" is assessed by the absolute majority of students graduating in 2019 (N = 11) and 2020 (N = 22).

The data from the 2019 and 2020 surveys of undergraduate students (EXIT) of the I cycle study programme *Land Use Planning* on what was the most useful in preparing for the labour market are presented in Table 4.7.

Table 4.7. Data from the 2019 and 2020 surveys of undergraduate students (EXIT) of the I cycle study programme *Land Use Planning* on what was the most useful in preparing for the labour market

What was most helpful in preparing for a professional activities (%/number)	**In 2019 (N=11)**	**In 2020 (N=22)**
Knowledge and skills acquired during study sessions (lectures, seminars, laboratory works, etc.)	54.55% (6)	81.82% (18)
Knowledge and skills acquired through independent tasks	63.64% (7)	36.36% (8)
Knowledge and skills acquired during study practice	54.55% (6)	68.18% (15)
Teacher assistance	54.55% (6)	22.73% (5)

Information on the quality of preparation for the labour market by interviewing postgraduate students and 12 months after graduation, presented in Table 4.8. The survey data show that the quality of readiness for work "More good" and "Good" is assessed by the absolute majority in 2019 (N = 20) and 2020 (N = 29) graduating students. 12 months later after graduation, 6 graduates participated in the survey in 2019, who also rated their readiness for the labour market well.

Table 4.8. II cycle study programme *Land Use Planning* graduate students (EXIT) 2019 and 2020 and 12 months after graduation in 2018 and 2019 survey data on what was most useful in preparing for the labour market

What was most helpful in preparing for a professional activities (%/number)	**In 2019 (N=20)**	**In 2020 (N=29)**	**In 2019 (N=6)**
			12 months after graduation
Knowledge and skills acquired during study sessions (lectures, seminars, laboratory works, etc.)	75% (15)	65.52% (19)	50% (3)

Knowledge and skills acquired through independent tasks	45% (9)	41.38% (12)	33.34% (2)
Knowledge and skills acquired during study practice	20% (4)	20.69% (6)	16.67% (1)
Teacher assistance	40% (8)	24.14% (7)	50% (3)

A survey of graduates found that the professional activities of most graduates of the programme correspond to the acquired specialty, or a close engineering specialty. Graduates work in such important state-owned enterprises as: the National Land Service under the Ministry of Agriculture (N = 22), the State Land Fund (N = 7), the Centre of Registers (N = 5). Other graduates work in their own or individual companies established by others: UAB Nektada (3 graduates), UAB Narma (2 graduates), UAB Aginro (2 graduates), UAB Inventora (2 graduates). UAB Geopiaskas, UAB Aplinka ir Ekologija, UAB Surveta, UAB Renaida Geo, UAB Geosmart, UAB Detas, UAB Geodezita, UAB Geosoma, MB Geoaksis - by 1 graduate in each.

Every year, the administration of the Faculty of Water and Land Management receives over 10 job offers for graduates of the Environmental Engineering field. Information on job offers is available on the website of the Faculty https://zua.vdu.lt/fakultetai/vandens-ukio-ir-zemetvarkos-fakultetas/.

4.6. Evaluation of the implementation of policies to ensure academic integrity, tolerance and non-discrimination

The principles of integrity are defined in the VMU Statute[49], the Code of Ethics of VMU[50], the Plagiarism prevention procedures of VMU[51], VMU Study Regulations. Non-discrimination measures are regulated by the Code of Ethics of VMU.

In the case of dishonest student behaviour, observed during the final examination or other assessment, teachers discontinue the student's performance and notify the Dean of the unit in which the student or listener is studying, the Chancellor of the Academy and the Department of Studies in writing. A final grade of 0 is written in the journal of study results for dishonest behaviour during any assessment. The investigation is carried out on behalf of the Dean of the Faculty and a final decision is made.

VMU procedure for plagiarism prevention identify types of plagiarism, methods of determining the plagiarism and consideration procedures, as well as recommendations for teachers and students on how to prevent plagiarism in written works. Both teachers and students have the right to appeal to the University's Academic Ethics Commission, which makes final decisions on academic integrity.

Cases of violation of the principles of academic honesty, tolerance and non-discrimination in the analysed field of studies have not been examined during the last 3 years.

4.7. Evaluation of the effectiveness of the application of procedures for the submission and examination of appeals and complaints regarding the study process within the field studies

Procedures for appeals and complaints of the study process are regulated by VMU Description of procedure for appeal investigation[52], the plagiarism prevention procedures of VMU and VMU Study Regulations.

Students have the right to make appeals regarding the assessment of learning achievements or assessment procedures when they disagree with the teacher's assessment and / or identify the violation of assessment procedures. Students can make appeals by: complaining of *multiple choice* assessments using the prescribed form; complaining of any other form of settlement assessment and / or breaches

[49] Access through the internet: https://www.vdu.lt/wp-content/uploads/2019/01/Statutas_2018_VDU.pdf (in LT)
[50] Access through the internet: https://www.vdu.lt/wp-content/uploads/2017/12/Akademin%c4%97s-etikos-kodeksas_2017.pdf (in LT)
[51] Access through the internet: https://www.vdu.lt/wp-content/uploads/2012/04/Plagiarism-prevention-VMU.pdf (in EN)
[52] Access through the internet: https://www.vdu.lt/wp-content/uploads/2014/11/apeliacijos_teikimo_nuostatai.pdf (in LT)

of settlement procedures using a free complaint form; in case of additional, unforeseen circumstances, the student has the right to submit documents proving them, which affect the appeal.

The Faculty has opportunities to study for socially vulnerable groups and students with special needs. Students and teachers use the opportunities provided by the distance learning system Moodle - the system of monitoring study progress, feedback and further planning of study progress. The study programme aims at the implementation of academic integrity, tolerance and non-discrimination.

There were no appeals and complaints, exclusions from examinations due to cases of dishonesty in this field of studies during the analysed period.

No recommendations from experts in the previous external evaluation have been made in this area.

Please provide main results of the self-evaluation in the area of *Studying, student performance and graduate employment*
Strengths
1. Students use the opportunities provided by the distance learning environment *Moodle*, the study progress monitoring system, the feedback and the possibilities of further study progress planning. The variety of study and evaluation methods provides an opportunity to objectively and comprehensively evaluate students' knowledge and skills acquired in the study process. 2. Employers and graduates value the quality of acquired knowledge and skills well. Strong links with companies provide students in the programmes being evaluated with the opportunity to conduct research or gather information for final theses or term papers, and often guarantee jobs for graduates.
Areas for improvement
1. Teachers need to constantly improve their skills and apply new teaching methods and forms in regular and distance learning environments. Actions: Continuously improve study and evaluation methods, including innovative forms of teaching, based on the results of surveys and feedback.

5. TEACHING STAFF

5.1. Evaluation of the adequacy of the number, qualification and competence (scientific, didactic, professional) of teaching staff within a field study programme(s) at the HEI in order to achieve the learning outcomes

The majority (90%) of the courses of the study field of Environmental Engineering (hereinafter - the Field) are taught by the teachers of the Faculty. During the recent period, as the number of students decreases, the number of teaching positions at the Faculty also decreases. From 2018, when there were 34 teaching positions at the Faculty (there were 17 students per teaching position), until 2021 (16.85 positions), the number of teaching positions at the Faculty decreased by 17.15. Currently, there are about 12 students per teaching position.

During the analysed period, the number of positions occupied by teachers decreased almost twice. Currently, there are about 12 students per teaching position.

In the field of Environmental engineering in the II cycle of studies, there were 11 students per teacher in 2017-2019, and 8 students in the academic year 2019-2020. There are 10 students per teaching position in the Master's programme this academic year.

The active scientific activity of the teachers, the administrative positions held by several teachers, made it possible to keep a sufficiently large number of highly qualified specialists in the Faculty. In the 2020-2021 academic year, the Faculty occupied 25.35 positions, of which 16.85 were teachers and 8.5 were researchers. In total, the Faculty employs 36 teachers and researchers, of which 11.1 pedagogical teachers work and conduct research in the field of Environmental Engineering, and the rest in the field of Civil Engineering.

Most of the courses in the study programmes are taught by more than 0.5 full-time positions teachers working at Vytautas Magnus University (Annex 4). The share of teachers of field courses

working at VMU for at least 0.5 full-time positions this academic year is: 88% in the I cycle and 72% in the II cycle. In the II cycle, they accounted for 93% in previous years. This year, the decrease was determined by the introduction of another methodology for calculating the pedagogical workload. According to this methodology, the number of hours previously allocated to the teacher for supervising the preparation of the final thesis significantly reduced. As a result, the four faculty members with the higher workload were left with less than 0.5 full-time equivalents.

During the analysed period, 4 professors, 14 associate professors and 13 teachers, 5 of them doctors of science, teach courses in the field of Environmental Engineering in the I and II cycles Land Use Planning study programme and in the renewed from 2020 I cycle Water and Land Engineering study programme (Table 5.2). 82 percent of teachers teach in both cycles of the study field.

Table 5.1. Number of teachers of Environmental Engineering field courses in study programmes

Study programmes	Professors	Associate professors	Lectors with scientific degrees	Lectors without scientific degrees	In total
Water and Land Engineering, I cycle	4	13	3	8	28
Land Use Planning, II cycle	3	4	5	2	14

Due to the reduced flow of students in the I cycle and the number of contact hours, respectively, there are about 3 study courses per teacher. Three teachers have 6 courses each, one has 7. If the number of students increases, this number will decrease. In full-time and part-time studies, courses are taught by the same teachers.

97% of the teachers of the Field have more than 3 years of pedagogical work experience.

80% of the teachers of the Field have practical experience. Average practical work experience - 6 years. Seven teachers of the Field have more than 10 years of practical work experience, two of them - 22 and 25 years each. Currently, 24 percent of the teachers of the Field who successfully combine pedagogical and practical activities teach at the Faculty. This share has remained very similar in recent years. About 30 percent of the Faculty's teachers give lectures to hydraulic engineering and land use planning specialists in professional development courses. This proves the excellent link between practical and academic work. These teachers are among the first to initiate the change of courses, their content, application of new methods, are active in preparing or discussing the country's normative documents related to the work performed.

Young employees join the activities of the Faculty in the study field of environmental engineering first by doing research work, carrying out projects together, and then starting to teach. Two years ago, a young doctor of science began teaching to students studying for a master’s degree. There are many potential teachers among doctoral students.

The structure of teachers' pedagogical work time is planned for one semester. The scope of work is differentiated by position. Workload planning is related to contact hours and the workload of teachers of individual positions is: professors - 450 contact hours, associate professors - 500 hours, teachers, assistants - 550 hours. The structure of working time is fixed in the annual individual work tasks of teachers. One third of the teacher's workload is devoted to teaching, another third is recommended for science, and another for methodological and organizational work. Therefore, the distribution of working time is a decision of the teacher. Teachers provide information on the results of their work in annual activity reports, which are monitored by the Department of Science and Innovation. In addition, the results are discussed with the director of the institute. In addition to pedagogical work, teachers are no less interested in scientific and organizational activities, which are course to a flexible system of motivation through the salary supplement.

The distribution of teachers in both study cycles (Tables 5.3 and 5.4) meets the requirements.

Table 5.2. Distribution of the contact workload of the teachers of the courses of the I cycle *Water and Land Engineering* study programme specializations, as a percentage of the total number of contact hours of the courses in the specialization

Specializations	Professors (must be ≥10%)	Doctors of science (must be ≥50%)	Teachers without a degree (must be <50%)
Aquaculture Engineering	10.2	78.2	21.8
Hydraulic Engineering	14.4	68.6	31.3
Land Use Planning	12.0	71.3	28.7
On average in the programme	12.2	72.7	27.3

Although the pedagogical workload of many teachers decreased in 2020, this situation also has positive consequences, as teachers spend more time on research. More research and articles are being carried out and published, therefore the number of professors will increase in the period of 2-3 years.

Over the last three years, the turnover of teachers in cycle II (Table 4) has been small. After the departure of two teachers from Vytautas Magnus University, the courses taught by them were taken over by specialists who also knew these fields very well. In 2020, one teacher in the programme successfully defended her doctoral dissertation.

Table 5.3. Distribution of the contact workload of the teachers of the courses of the II cycle *Land Use Planning* study programme, as a percentage of the total number of contact hours of the courses in the specialization

Study year	Professors (must be ≥20%)	Doctors of science (must be ≥80%)	Teachers without a degree (must be <20%)
2017-2018	21.6	81	19
2018-2019	21.6	88.6	11.4
2019-2020	30.5	88.6	11.4
2020-2021	20.3	84.2	15.8
On average	23.5	85.6	14.4

Compliance of staff qualifications with the requirements is presented in Tables 5.5 and 5.6.

Table 5.4. Compliance of the Field staff with the requirements for the I cycle study programme implementation

Criteria	Requirements	In the programme
At least a master's (or equivalent) degree	Not less than 100%	100%
Master of Environmental Engineering (or equivalent) degree	Not less than 50%	78%
Taught by scientists with dr. degree Of these, scientific activities correspond to the courses taught	Not less than 50% Not less than 60%	71.4% 65%
Professors teaching in the studies	Not less than 10%	12.2%
General study requirements. Order of the Ministry of Education and Science of the Republic of Lithuania No. V-1168. 28 p. Description of the group of engineering study fields. Order of the Ministry of Education and Science of the Republic of Lithuania No. V-964. 53.2 p., 55 p.		

Table 5.5. Compliance of the Field staff with the requirements for the II cycle study programm implementation

Criteria	Requirements	In the programme
At least a master's (or equivalent) degree	Not less than 100%	100%
Master of Environmental Engineering (or equivalent) degree	Not less than 50%	100%

Taught by scientists with dr. degree Of these, scientific activities correspond to the courses taught	Not less than 80% Not less than 60%	86% 93%
Professors teaching in the studies	Not less than 20%	23.5%
General study requirements. Order of the Ministry of Education and Science of the Republic of Lithuania No. V-1168. 29 p. Description of the group of engineering study fields. Order of the Ministry of Education and Science of the Republic of Lithuania No. V-964. 56 p.		

In the studies of both cycles, all indicators meet the requirements. The aim is to increase the share of workload taught by professors.

The scientific competence accumulated by scientists allows for successful participation in expert activities. Teachers are members of various institutions, societies, associations: Lithuanian Academy of Sciences, UNESCO IHP - *International Hydrology Programme*, *International Association of Hydrological Science*s (United Kingdom), *Nordic Association for Hydrology* (NAH, Norway), *Nordic Federation of Agricultural Researchers* (NJF) , *The Boards of the Environmental Association*, the *European Academy of Land Use and Development* (EALD, Switzerland), *the Higher Education Academy* (HEA), *the Association of European Applied Research Societies* (EWG-ORSDCE or Sustainable Development and Civil Engineering), *the Association of European Operational Research Societies* (EWG-ORSDCE, OR *in Sustainable Development and Civil Engineering*), *the International Council for Research and Innovation in Building and Construction* (CIB) European Working Group Councils and others. Nine teachers work as experts in the evaluation of Land administration systems in the Baltics and other European countries (Estonia), research projects "Experiment" of the Lithuanian Business Support Agency, Technical Committee of the Lithuanian Standardization Department, etc. activity experts.

Teachers are also included in the editorial boards of high-level scientific journals and scientific conference publications. They are in the editorial boards of the following publications: *„Journal of Water Security*, *„Environmental Research", „Engineering and „Management"*, *„Agricultural Sciences", „Baltic Surveying", The XXXI Nordic Hydrological Conference „Hydrology and water-related ecosystem services",* "*Young Scientist* "and others. The two teachers are the editors of the Lithuanian Association of Land Management and Hydraulic Engineers professional magazine "*Land Management and Hydraulic Engineering"*.

14 teachers of the study programmes are members of the public councils of Lithuanian ministries and their subordinate institutions: the Management Committee and Labour Committee of the organization representing Lithuanian engineers, the Public Council Geodesy, Real Estate Cadastre and Land Management Planning Document Development Commission; Commissions of the Public Council of the Ministry of Agriculture, geodesy, real estate cadastre and land management planning documents to examine the possibilities of improving the legal acts regulating the field of activity; Examinations Commission for Examination of Professional Knowledge in the Preparation of Land Management Planning Documents of the National Land Service under the Ministry of Agriculture; Lithuanian Standardization Department and Lithuanian Association of Responsible Business, Commission for Assessment of Professional Knowledge of Land Reclamation Specialists, Breakthrough Group for Regulation of Moisture Regime in Soil Regulation by Installing Smart Land Reclamation; Vilnius city Municipal Urban Planning Public Commission, etc.

Teachers and researchers represent the University in the Lithuanian Union of Scientists, the majority (about 83%) of the teachers of the Field are members of the professional Lithuanian Association of Land Management and Hydraulic Engineers (ALMHE), the representative of the Faculty is currently the President of ALMHE. The staff of the Faculty is quite active in Lithuania, Europe or worldwide.

All teachers of the programme speak one or more foreign languages at least B2 level.

5.2. Evaluation of conditions for ensuring teaching staffs' academic mobility (not applicable to studies carried out by HEIs operating under the conditions of exile)

Each VMU teacher has opportunities to use Erasmus+ programme possibilities:

- To go for Erasmus+ teaching visits to VMU partnership universities in the EU as well as EEA/candidate countries (516 partner institutions) or outside the EU (99 partner institutions). About 200 VMU teachers accept teaching mobility possibilities in a year.
- To go for Erasmus+ training visits to any institution or organisation (including other higher education institutions) in the EU as well as EEA/candidate countries or to any partnership university outside the UE. About 180 VMU staff members participate in staff mobility for training in a year.

Favourable conditions are created for mobility to universities of other countries, therefore in 2017-2019 there was a large number of academic exchanges of teachers of the course (115 visits). Teachers went 47 times to give lectures, 44 times for internships, courses, 24 trips related to participation in international programmes. The ten most active teachers left for these purposes 3-9 times during the reporting period. The share of teachers active in mobility is about 40%. Other teachers limited themselves to 1-2 visits. The most popular countries to visit: Poland, Latvia, Czech Republic, Spain, Croatia, Portugal, Finland, Germany, Bosnia and Herzegovina, Estonia, USA, Kazakhstan, Ukraine. Teachers use the experience gained on trips abroad to improve the study process: 72% supplement the lecture material with examples, 7% apply new teaching methods and apply them in practical work, and 14% apply them quite widely. Teachers provided many examples used in the study process, several of which are presented: 1. More active teaching methods have been introduced. 2. Active discussions are conducted or various game models are applied. 3. Application of interactive virtual tools and methods. 4. During the classes, examples of foreign countries are presented, in practical works the possibilities of the FAO recommended model AquaCrop are presented. 5. Data in foreign spatial data sets are analysed. 6. Students are introduced to the experiments performed with floating bell islands in order to reduce water pollution and so on.

In 2017-2020, 20 teachers from abroad came to give lectures and internships, mostly from Poland (10). As many as 87% of the teachers of the Field participated in the lectures given by foreign teachers, of which over 40% of the teachers listened to 3 or more lectures. Students also actively participated in the lectures of foreign teachers. Guests from Bulgaria assoc. prof. dr. Milena Moteva's lecture on "Sustainable Land Use Planning: Case Study in Bulgaria" was listened to and discussed by 19 students and 15 teachers. A significant number of Faculty representatives were interested in lectures on the possibilities of using GIS.

It is useful for raising qualifications, establishing contacts (cooperation). In this way, good practice is taken over, the teaching of study courses is improved, joint training courses and joint international scientific conferences are organized, 15 applications for research projects have been prepared with foreign colleagues, 6 projects have been implemented, and more than 15 scientific articles have been prepared.

At present, we also have examples of virtual mobility. A protracted pandemic encourages "remote" mobility. Competitive funding of the University and LMT for professional development in scientific trips ("Raising Competence in Scientific Internships", "Raising Competence in Scientific Events Abroad") are good and achievable means for realizing mobility. During the pandemic, many teachers participated in remote events: seminars in Lithuania (excluding organized by Vytautas Magnus University) - 92% (47% of which - in five and more), abroad - 65% (of which 6% - in six and more), scientific conferences in Lithuania - 77% (of which 18% in three, the rest in one (35%) or two (24%)), abroad - 48% (of which 6% in four, the rest in one (18%) or two (24%)).

5.3. Evaluation of the conditions to improve the competences of the teaching staff

At VMU, teacher professional development is organised under 8 groups of competences: higher education didactics competences, digital competences, research competences, management competences, foreign language competences, intercultural competences, course-related competences

and personal competences (regulated by the Description of Procedure for Professional Development at VMU, 2018).

Teachers are invited to participate in training courses for professional development in above mentioned different groups of competences. Professional development includes teacher participation in the University-provided courses as well as ones organised by other Lithuanian institutions or international institutions. The University-provided possibilities for professional development are free of charge for VMU teachers. All teachers of the Field during the reporting period participated in VMU professional development events, of which as many as 61% of them participated in more than 5 events. The training courses for competences of higher education didactics encompass such topics as active learning and student involvement into learning, learning achievement assessment and feedback for students, teaching and learning in distance studies, etc.

In 2019, two topics received special attention from teachers: “Active learning methods and student involvement in studies” and “Feedback to students: how can we help them learn better?”. Trainings are organized several times a year, they use the University's internal resources, i.e. University teachers were invited to conduct the training, who shared useful recommendations, expert insights and their experience in these areas. In 2020, after evaluating the experience of the previous year, both VMU teachers and external experts conducted trainings for teachers at the University by organizing trainings on the application of innovative teaching/learning methods, effective feedback and evaluation of study achievements, student involvement in studies and research, study content updating and quality improvement.

In 2020 and 2021, teachers became more actively involved than before in the training conducted by the VMU Institute of Innovative Studies on the organization of distance learning, cooperation and evaluation tools in distance learning, responsible use of technology, etc. The trainings of the Vytautas Magnus University Institute of Foreign Languages, aimed at developing the English language skills of teachers, also received a lot of attention from teachers.

At the end of each training, participants provide feedback on the training that has taken place, which allows for the adjustment of the training content and reveals other training areas relevant to the academic staff. Training topics are also selected taking into account the teachers' suggestions for future training presented in the University Teacher Survey.

In addition, about 75% of the teachers in the Field participated in professional development activities in other institutions, selecting them according to their teaching and research interests. If such opportunities require funds, University teachers can apply for financial support to their departments or science and research clusters, take advantage of the Erasmus+ programme and other opportunities.

Expert recommendations provided during the last external evaluation related to *Teaching staff*			
No.	*Recommendation*	*Actions taken by the HEI*	*Comments*
I and II cycle Land Use Planning study programme			
1.	I cycle *Land Use Planning* study programme: Encourage long-term presence of teachers in centres abroad and increase the number of visiting foreign teachers in the centre in order to update the programme and exchange teaching experience. / II cycle *Land Use Planning* study programme: Teacher and	Both teachers and students participate in the *Erasmus+* programme, BOVA/NOVA and other courses and went on internships and seminars abroad. On average, there are 10 visits of teachers and 7 visits of students each year. During that time, there were 7 visits of foreign teachers and 11 visits of foreign students per year.	

	student mobility should be encouraged.		
II cycle Land Use Planning study programme			
2.	The workload of some teachers seems too high and should be reduced.	The number of contact hours of teachers decreased, but from the 2020-2021 academic year, this number increased again. In order to improve the situation this academic year, about 40% of the teachers of the Field are employed in the position of researchers (occupying from 0.25 to 0.9 positions), after reducing their pedagogical workload. This also provides an opportunity for more active scientific activities.	

Please provide main results of the self-evaluation in the area of *Teaching staff*
Strengths
1. The scientific, didactic and professional competence of the teachers working in the programmes is fully suitable for achieving the study results. 2. The high mobility of the programme's teachers meets the requirements of *Erasmus+* and other programmes, provides opportunities to improve, share experiences, and develop the internationality of studies. 3. The conditions for the improvement of teachers' competencies by participating in didactic skills development courses organized at the University, in the implementation of national and international research projects, and in the competitions for trips to scientific events organized by LMT are good.
Areas for improvement
1. As the number of students decreases, the employment of teachers decreases or the number of courses taught increases, which is not good in terms of the quality of work. **Improvement:** In the future, teachers need to be even more involved in research projects. According to the planned reform of the University, the projects should be carried out in larger groups, so that more teachers will be involved in these activities. 2. To maintain close links with the social partners in the future. To strive for students to have the opportunity to work with the latest equipment and apply the latest technologies during internships in companies or institutions.

6. LEARNING FACILITIES AND RESOURCES

6.1. Evaluation of the suitability and adequacy of the physical, informational and financial resources of the field studies to ensure an effective learning process

Studies are provided effectively using VMU material resources that are organised in order to create appropriate conditions for student learning and teacher work aiming at study quality assurance, what guarantees opportunities for effective studies[53]. Particularly good conditions are in the AA Campus. It is convenient and inexpensive to stay in compactly located dormitories, while those living outside the dormitories and coming from the surrounding areas to the University in their own cars have excellent transport and free parking conditions.

There are 222 classrooms at the University which can be used for the study process according to teaching and learning needs. The size of the rooms varies from 5 up to 150 working places for

[53] Access through the internet: https://www.youtube.com/watch?v=MTtfSRozWKY

students. Larger groups of students are able to have study courses in VMU Grand Hall possessing 725 seats. The schedule for lectures is designed taking into account the number of students in the course and the number of working places in the classroom. This allows assigning rooms of an optimal size to deliver study courses.

General study courses are mainly delivered in the central buildings of the University which are located closely each to other that is why it is convenient for students to change study rooms during breaks. Special courses are mainly delivered in the Faculty/Academy building where the administrative staff and teachers of special courses are working, and this allows administrative and teaching staff members become more accessible for students.

All the buildings are adjusted for disabled people: elevators and lifts for wheelchair of disabled people with mobility disabilities have been installed. Students with disabilities have access to parking near the University buildings; the entrance to the buildings is constantly maintained and renovated; libraries have equipment for the disabled to create working places for them, classrooms are with the necessary furniture. Students with disabilities have the opportunity to stay in dormitory rooms adapted for them, if necessary, with an accompanying person. The study process is organized according to the individual needs of students; disability education campaigns are organised; data on students with disabilities are integrated into the databases, thus allowing facilitate the entire study process for students with disabilities.

Studies are provided in the rooms with the necessary equipment, rooms are computerised and have internet connection as well as multimedia projecting equipment, audio and video equipment. If needed, additional technical equipment can be supplied to properly organise specific study courses and enable appropriate application of different study methods to assure quality of student learning achievements. 46 computer rooms have been equipped for the study process, and the size of computer classes varies from 5 to 31 working places.

Students and teachers are provided by a virtual learning environment and collaboration systems Moodle. This tool allow teachers to choose different forms of organization of study courses, to organize practical activities in various ways, to share teaching and learning instruments. All the functions necessary for teamwork have been realised in Moodle: communication within the University, storage and dissemination of information, shared calendars, contact databases, link lists, user directory, authentication of other systems, authorized access to databases, synchronization with mobile devices, Internet e-mail, Websites.

The University ensures good opportunities for distance learning. During the implementation of distance studies, the use of Adobe Connect video conferencing and BigBlueButton video conferencing tools have been created for the organisation of teachers' work with students. VMU Office 365 Teams is often used as a tool for organising other distance activities.

Important VMU IT tools for presenting study information are the Student Portal and the Teacher Portal. The main principles of the Student Portal: centralized (based on integrated services) provision of information on the study process to students; possibility to integrate other information systems. The portal operates in a bilingual mode – In Lithuanian and English. Teacher Portal is an analogue to the Student Portal, and its main functionalities include monitoring of registration in study courses, electronic student achievement records, review of teaching quality assessment results. The system operates in a bilingual mode.

For special study courses in the field of environmental engineering, the Faculty is equipped with three computer classes, which can accommodate 45 students at a time. The total area of the premises is 148 m^2. There is a constant Internet connection in the computer classrooms, and students can use both general-purpose software and special-purpose programmes that are required for students majoring in environmental engineering. 16 specialized laboratories of the Faculty are used for work with separate groups of students (subgroups), which are equipped with 14-30 workplaces and 8 auditoriums with an average of 30 workplaces each. Graphic works are performed in the drawing room of the IIIrd building, which has 30 seats. In these laboratories, students perform certain practical work and are introduced to the research carried out there. Students are taught to solve environmental engineering tasks and work with various GIS software (QGIS 3.16.0; *Arc*GIS Pro 2.4; *Arc*GIS 10.7),

software for designing civil and environmental engineering objects (Autodesk *Auto*CAD *Civil* 3D, *Geomap*) modelling software for geoengineers and environmental engineers (*GeoStudio*), decision support software (*Promethee*), green energy design and project management software (*RetScreen*), water flow modelling and analysis software (HEC-RAS, HEC-HMS, HEC-*ResSim*, *MikeUrban*), field measurement data analysis and processing software (*Trimble Business Centr,e Trimble RealWorks*), photogrammetric and image processing software (*Agisoft Metshape Professional*, *Trimble eCognition*). Every student has the opportunity to access and use the aforementioned software and achieve the results of the study programmes.

The University has concluded agreements with state institutions and has access to state information subsystems such as ŽPDRIS (www.zpdris.lt) and GeoMatininkas (https://www.registrucentras.lt/p/531). These subsystems allow students to get acquainted with the latest systems operating in Lithuania, which are used in practice in the preparation of land use planning documents and electronic files of real estate (land plots) cadastral data, preparation, submission, verification, coordination of real estate cadastral data entry and deletion, correction works.

Research in the final theses of students in the field of environmental engineering requires various geo-data, therefore all students have the opportunity to use all data sets provided by the Lithuanian spatial information portal www.geoportal.lt managed by SE "GIS Centras" free of charge. It is also very important that students can get acquainted with and learn how to work with the latest geodetic instruments on the market during the practical classes or collect the data required for the final theses, so the student is given access to the equipment needed for field measurements. Students in the field of Environmental Engineering can use the latest geodetic devices, remote sensing systems and other devices required for studies to collect spatial data and perform the necessary geodetic measurements.

During both lectures and practical classes, students are introduced to the latest geodetic instruments, the principles of their operation and are informed about the devices available at the University and the possibilities to use them.

The University has an open access Centre for Biosystems Engineering, Biomass Energy and Water Engineering with 10 laboratories conducting research in the field of environmental engineering. The equipment in the laboratories is available to all university students and researchers, and more detailed information on the equipment in the laboratories can be found on the website[51].

The University Library is an attractive information environment for studies and research, ensuring effective services for members of the University community, providing access to information resources necessary for studies, science and professional qualification.

A modern physical infrastructure of Library departments[54] has been created in faculties and academies allowing provide conditions for effective response to the research and study needs of academic units. Members of the University community can visit all departments of the Library and use its all services, regardless of which faculty or academy they study or work in. The library has created a total of 770 working places for them, visitors can work with 237 Library or personal computers. Visitors also have an opportunity to access to individual and group work rooms, workplaces for visitors with disabilities, discussion spaces and recreation areas. Opening hours for individual / group work can be booked in advance via the library website[55].

The library has self-taking / returning devices (RFID), which allow users to borrow / return publications themselves and extend the deadlines for returning publications.

All departments of the Library are equipped with 19 workplaces for users with special needs. The Library has special equipment: software JAWS 14 for Windows, Win Taker Voice 1.6, Super Nova Magnifier, electronic Braille device ESYS 40, tactile printer, stationary magnifier TOPAZ XL XD 24, keyboards for the visually impaired, alternative computer mice, height-adjustable tables, ergonomic chairs.

[54] Access throught the internet: https://biblioteka.vdu.lt/en/about/structure/departments/ (in EN)
[55] Access throught the internet: https://biblioteka.vdu.lt/en/for-studies/facilities-and-study-spaces/booking-a-workspace/ (in EN)

One of the most important tasks of the Library is to accumulate document collections and organize access to traditional and electronic information resources. In 2020, the Library fund accumulated 1.1 million traditional (printed) documents. The dominant type of information sources is electronic information resources, which is clearly revealed by the constantly growing indicators of their demand and usage. VMU community members can use purchased, licensed and library-created electronic information resources at any time of the day. The newest and most relevant information required for studies and research is available to members of VMU in subscribed databases[56], VMU Research Management System (CRIS) and VMU virtual library[57]. Information resources for course studies can be found in the Study course Literature Catalog[58].

The university community has access to almost 676 thousand electronic resources (410 thousand e-books, 38 thousand e-journals, 228 thousand conference reports, audio recordings, etc.), 61 licensed database. They can be connected from the University premises and from remote computers (via EZproxy[59]). The Thematic Directory of Information Resources (CoursePlus) provides users with the opportunity to find systematic links to thematic information contained in the University's licensed or open access academic resources according to the courses studied at the University.

The aim of the Library is to create user-friendly conditions for access to information sources. The most necessary printed documents are freely available to users and are kept on shelves (almost 300 thousand publications in open collections) according to scientific fields, the search for publications on the shelves is facilitated by information notes and various virtual aids. All information about the available collections and access to them is available on the library website[60], electronic catalogues, in the virtual library, in the institutional Research Management System.

Research Management System VMU CRIS is an open science infrastructure that has been in use since 2019. With its help, the University's study and research production is accumulated and its dissemination in the world is ensured. The interactive cross-links among scientific publications, their authors, departments and ongoing projects help the user to fully get acquainted with the scientific production and activities of the University. Currently, VMU CRIS stores about 65 thousand publications, almost 19 thousand final thesis (ETD) records, almost 30 thousand e-mail documents: books, journal articles, ETDs and other documents, over 10 thousand external references to full-text documents. The archives of 41 electronic University scientific journals have been prepared in the VMU CRIS repository.

To prevent plagiarism and copyright infringement, the Library administers text matching programmes for teachers[59] iThenticate and Oxsico.

The Library conducts information literacy training, the aim of which is to provide knowledge about information resources, their search and access possibilities, to develop effective information search and selection skills, to acquaint with the principles of academic integrity, to provide information on correct citation of information sources in studies or research. Video presentations are prepared for distance learning.

The University Libraries have a total of 1,216,523 printed study documents (of which 378,916 in the Library of Agriculture Academy) and 6,237,63 electronic documents. Electronic resources are available in 58 licensed databases, in the VMU CRIS Research Management System (VMU CRIS), VMU virtual library. Printed study documents in the field of environmental engineering are mainly stored in the Library of Agriculture Academy, a smaller number of publications on this topic are kept in other departments of the Library (Table 6.1).

[56] Access through the internet: https://biblioteka.vdu.lt/en/databases/ (in EN)
[57] Access through the internet: https://vb.vdu.lt/primo-explore/search?vid=VDU&lang=en_US (in EN)
[58] Access through the internet: http://courses.vdu.lt/courses/index.php (in EN)
[59] Access through the internet: https://login.ezproxy.vdu.lt:2443/login (in LT)
[60] Access through the internet: https://biblioteka.vdu.lt/en/ (in EN)

Table 6.1. Number of study documents in the field of environmental engineering in the University Library

Main information	Traditional documents	Electronic resources
Resources for environmental engineering studies (units)	~ 31,959 (of which in the AA Library ~ 25,900)	2,890 (235 e-journals, 2,511 e-books, 144 ETD works)
Documents in open funds (units)	293 550 (of which in the AA Library 54 185)	Email access resources on VMU computer network and from remote computers at any time of the day
Use and search of documents	241648 (of which in the AA Library 51 187)	4050 675 searches1419 880 full text document downloads

Vytautas Magnus University licensed databases recommended for studies in the field of Environmental Engineering. Multidisciplinary, full-text databases: *Academic Search Complete* (EBSCO), ASABE (*American Society of Agricultural and Biological Engineers*) *Technical Library*, *Ebook Central (Academic Complete), eBooks on ScienceDirect*, EBSCO *eBook Academic Collection, Emerald Management eJournals Collection, Oxford Journals Collection*, SAGE *Journals Online, ScienceDirect, SpringerLink, SpringerLink Archive, Taylor & Francis*, KTU publishing house electronic books, VGTU publishing house electronic books.

Scientific evaluation tools: *InCites Benchmarking & Analytics (Clarivate Analytics), InCites Journals and Highly Cited Data (Clarivate Analytics), Web of Science (Clarivate Analytics*).

Specialized literature is also accumulated in the libraries of the Faculty institutes. The students preparing their final theses use the literature accumulated in the institutes during the implementation of projects obtained through communication and cooperation with foreign researchers.

In order to prevent plagiarism and copyright infringement, the library administers text matching programmes for teachers iThenticate and Oxsico.

The library conducts information literacy training, the aim of which is to provide knowledge about information resources, their search and access possibilities, to develop effective information search and selection skills, to acquaint with the principles of academic integrity, to provide information on correct citation of information sources in studies or research. Video presentations prepared for distance learning.

The physical and information material resources available at the University allow to ensure a high quality of environmental engineering studies.

6.2. Evaluation of the planning and upgrading of resources needed to carry out the field studies

Every year, VMU upgrades computers and purchases technical equipment according to the resource development plans submitted by the faculties and academies, which they prepare according to the study needs. About 20% of computers are renewed annually. Almost all computers are connected to a common network and have an Internet connection, VMU computer network security systems are constantly updated.

VMU uses a centralized system for monitoring and updating hardware and software, and only legal software is used in computer classrooms and other computerized workplaces. Every six months, the software is audited and updated or supplemented. The commercial software used in the study process is used with educational licenses and is available to students free of charge.

When planning the renewal of information resources relevant to studies, the necessary documents for study programmes are coordinated with the Library by the teachers responsible for study programmes and courses. Also, the analysis of the flow of study scientific publications is performed and recommended for acquisition by teachers and responsible Library employees – faculty curators (course librarians). Faculty curators maintain constant contacts with the councils of individual faculties, institutes and academies, inviting teachers to participate in the development of

information resource collections, offering to purchase new printed and electronic documents relevant to studies.

An interactive document ordering service[61] is installed on the Library website. Requests are based on the reasons of the need for the quantity, form and storage space of resources required for studies or research. Teachers receive feedback on the availability of the requested resources, deadlines, storage location and access conditions. New information resources are updated and purchased in the library every year. For example, in 2019, the cost of information resources required for environmental engineering studies amounted to 6,222 Eur.

Due to the peculiarities of the teacher evaluation system, university teachers write and update textbooks required for studies in the field of environmental engineering in Lithuanian language less and less. Textbooks and materials needed for studying in Lithuanian are becoming older and less relevant.

As technology changes, so does the need for newer devices and software, and the University is making great efforts to enable students to study using the latest devices and software. Over the past few years, new geodetic instruments, aerial photography equipment, drones, GIS software, geodetic survey data processing equipment, etc. have been purchased.

Although constant efforts are made to update the software and field measurement equipment used for special courses in the field of environmental engineering, taking into account the opinion of teachers and students, the University does not systematically interview teachers regarding the renewal of physical material resources.

Expert recommendations provided during the last external evaluation related to *Learning facilities and resources*			
No.	*Recommendation*	*Actions taken by the HEI*	*Comments*
I and II cycle Land Use Planning study programme			
1.	I cycle study programme *Land Use Planning*; The building, classroom and laboratory equipment renovation project was still ongoing at the time of the Reviewers visit. During short time the person in charge of the programme should constantly supervise the final state of the project if possible. II cycle study programme *Land Use Planning*: Faculty should evaluate and supervise the final state of the building renovation project and classroom and laboratory equipment	All renovation work on the buildings has been completed on time and the premises are currently being used as intended.	

Please provide main results of the self-evaluation in the area of *Learning facilities and resources*
Strengths
1. The University has an upgraded infrastructure that allows students and teachers to feel comfortable and well and helps to ensure high quality studies in the field of environmental engineering. 2. The software used in environmental engineering studies is constantly updated, thus providing students with the knowledge and skills to work with the latest software. 3. The laboratories required for environmental engineering studies are equipped with the necessary modern equipment and premises. 4. Excellent conditions for working in libraries and using its diverse resources.
Areas for improvement
1. Develop more quality teaching materials and textbooks. Encourage teachers more for the development of quality textbooks or teaching materials.

[61] Access through the internet: https://biblioteka.vdu.lt/en/for-research/purchase-request/ (in EN)

7. STUDY QUALITY MANAGEMENT AND PUBLICITY

7.1. Evaluation of the effectiveness of the internal quality assurance system of the studies

Studies are managed and decisions are made by the participation of the following parties: Academy Council, Chancellor of the Academy, Faculty Council, the Study Programme Committee (hereinafter SPC), Dean of the Faculty and Head of the Department.

The Academy Council is responsible for approving substantial updates of new and ongoing study programmes, such as changing the name of the programme, introducing/abolishing specializations.

The Faculty Council is responsible for ensuring the quality of the field of study: it considers the composition of the SPC, programme improvement plans and makes decisions on improvement.

The SPC's main responsibilities include coordination of the Programme's implementation regarding the curriculum related questions and assurance of the Programme quality. The SPC performs internal Programme quality assessment and renewal, it is responsible for preparation and implementation of the Programme quality improvement plans. The SPC assures correspondence of the Programme learning outcomes to labour market and society needs, it keeps contacts with stakeholders and assures their involvement into the Programme. The SPC makes decisions by common agreement, and they are documented as meeting minutes.

The Committee of the I cycle *Water and Land Engineering* Study Programme Committee consists of 9 members: 6 teachers, 1 student and 2 representatives of employers. *The Land Use Planning* Study Programme Committee of the II cycle consists of 7 members: 5 teachers, 1 student and 1 employer representative.

Responsibilities among the SPC members are shared as follows:

- The chairperson is in charge of coordination of Programme quality assurance and effective SPC work, (s)he organises annual Programme assessment and preparation of quality improvement plans as well as monitors implementation of these plans.
- Teachers belonging to the SPC are responsible for revision of the Programme learning outcomes and curriculum design so that to keep to the newest research, course-related, didactic requirements and trends. They disseminate good examples of international experience, carry out Programme self-assessment, give suggestions for the Programme improvement and follow decisions on improvement.
- The social partners' representatives participate in the revision of the Programme learning outcomes in line with labour market needs and give recommendations for renewal.
- The student representatives give suggestions for the Programme renewal based on own and other students' proposals and participate in implementation of these renewals.

In case of discrepancies in the quality of studies (e.g. in case of repeated negative student evaluation), the committee makes decisions and informs directors of the institutes and the Dean, who have the authority to change the teacher for reasonable reasons, as well as provide workplaces with necessary resources and safety measures.

The Chancellor of the Academy coordinates the quality of the implementation of the study process (approves the composition of the SPC, the topics and supervisors of the final theses, the commissions for the defence of final theses, etc.).

The Dean of the Faculty is responsible for ensuring the quality of the study process implementation. For example, he reviews and updates implementation plans, deals with the organization and technical administration of the study space, is responsible for the dissemination of information, student registration, study documentation, and so on.

The director of the institute is responsible for the selection of teachers (together with the SPC and the Dean) and the accounting of their workload, the implementation of research related to the study programme and the implementation of the study programme.

Decisions regarding the quality of studies and their management are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015), national and VMU legal acts. The main VMU documents regulate the following issues:

- VMU Statute (2018) determines general principles of quality assurance of studies and research.
- VMU Study Regulations (2021 new edition) describe the process and responsibility distribution in study quality assurance.
- Description of Procedure for Study Quality Assurance at VMU (2019, new edition) defines in more detail quality assurance processes when developing, implementing and improving studies.
- Description of Procedure of Feedback for Improvement of Quality of Studies at VMU (2019, new edition) regulates gathering information from different stakeholders and data application for evaluation and improvement of studies.
- Description of Procedure for Study Course Attestation at VMU (2019, new edition) determines assessment of study courses in accordance with programme aims, learning outcomes and study process needs. This description requires the assessment of courses to be performed every 3 years.

The above-mentioned documents are made public on the VMU website[62].

According to the needs identified in the Committee or the necessary staff changes, the directors of the institutes are looking for staff. Attestation of study courses takes place at least every three years according to the Description of Procedure for Study Course Attestation at VMU. At the time of attestation, the scientific activity of the teacher during 5 years is evaluated.

7.2. Evaluation of the effectiveness of the involvement of stakeholders (students and other stakeholders) in internal quality assurance

Significant information for decision-making and quality assurance come from the results of periodic electronic surveys aimed at gathering information from different stakeholders:

- The survey of teaching and learning evaluation of the study courses is conducted at the end of each semester. The students are asked about teaching regarding a list of criteria (organisation of teaching, methods for student active participation, clarity of the course delivery, content illustration by examples, clarity of evaluation criteria, feedback on completed assignments, information delivery in distance environment, behaviour compliance with ethical requirements). Students are also inquired about their own involvement in learning, and they are requested about completed tasks, class attendance and general self-evaluation of their own work.
- The survey of first-year bachelor students regarding the reasons for the choice of studies and their expectations as well as opinions about studies is conducted at the beginning of the second semester of studies.
- The survey of the graduates of studies (EXIT) about the studies, final theses, and the preparation for the labour market are conducted at the end of the studies.
- The survey of alumni on their adaptation in the labour market and career is conducted 12 months after graduation.

University surveys reveal general trends, and for deeper analysis, departments conduct context-sensitive feedback gatherings through discussions, interviews, interviews, focus groups, and other methods. The survey results as well as other information about studies is the basis for annual analysis of studies performed by the SPC to identify strengths and weaknesses of studies. The main issues under annual analysis are as follows: compatibility between the Programme and newest research trends, correspondence between the Programme and labour market needs, demand of the Programme, suitability and sufficiency of the programme resources, teachers' competence, students' progress, students' and teachers' mobility as well as other issues. The results of the analysis are discussed with

[62] Access through the internet: https://www.vdu.lt/en/about-vmu/important-documents/ (in EN) as well as https://www.vdu.lt/lt/apie-vdu-kaune/svarbiausi-vdu-dokumentai/senato-dokumentai/ (in LT)

the Head of the Institute and the Dean of the Faculty, they are also presented during the meetings with students and teachers.

This analysis is used to make annual Programme improvement plans and implement them in order to develop the identified areas for the improvement. Twice a year the SPC discusses the progress of quality improvement plans in its meetings to monitor the improvement actions.

Stakeholders of studies are involved in quality assurance through the following actions:

– Teachers are invited to present their comments and suggestions regarding improvement in the Department, Faculty as well as the SPC meetings or via surveys.

– Students give their assessments of studies through the student representative in the SPC, via student surveys and in direct discussions with teachers.

– Social partners' representatives in the SPC suggest their remarks regarding the Programme correspondence to labour market requirements, relevance of student practical skills, etc.

– Information from social partners is also collected via surveys, during Career Days at the University and in special discussions, for example discussing student practice and research project issues, joint project possibilities, etc.

– Alumni suggestions are identified via surveys and during meetings organised by the Faculty Alumni association where the Programme alumni are active participants.

– The suggestions of stakeholders are discussed in the SPC meetings, and decisions are taken to use them for quality improvement.

The improvement of study programmes and teaching methods is discussed every year at international conferences, which unite scientists and teachers in the field of environmental engineering from various countries. In addition to University representatives, representatives of state institutions and production organizations are always present. The evaluation of study programmes and the need for improvement are discussed with employers during Career Days, Alumni Association events, meetings with entrepreneurs during the exhibition "What to Sow" and "Circle of Solutions".

In the training of environmental engineering specialists, the managers of their future workplaces participate in the training process by communicating with teachers and coordinating study programmes with them. There is a particularly close cooperation with social stakeholders and future employers from the National Land Service under the Ministry of Agriculture, the Environmental Protection Agency, state-owned enterprises: the Centre of Registers, the Inland Waterways Directorate, the State Land Fund and other private enterprises. Their representatives are invited to the final thesis and examination evaluation commissions. There is also communication with the Lithuanian Association of Land Management and Hydraulic Engineers and the Lithuanian Association of Land Reclamation Enterprises. The main requirement of these institutions for the quality of teaching is to ensure that graduates are able to work competently in production-relevant jobs with high demand, to respond flexibly to changing conditions, to be innovative. All proposals are analysed, summarized by the Committee and approved by the Council.

Every year, the Council discusses the results of the defence of bachelor's and master's final thesis, with the participation of the Committee Chairs, who comment on the topics, quality and practical applicability of the final thesis. The remarks are analysed and, based on them, recommendations are formulated for a better implementation of the work preparation process for the next year.

7.3. Evaluation of the collection, use and publication of information on studies, their evaluation and improvement processes and outcomes

Information about studies is gathered, analysed and evaluated in order to assure regular self-assessment and improvement. Annual analysis of studies allows identify shortcomings in time and take necessary actions for improvement. Teaching and learning quality assessment at the end of each course gives possibilities for teachers to monitor their teaching and respond to students' suggestions when delivering the course next time, and this assessment invites students to think over their own learning and consider possibilities for improvement.

Quality assessment measures have been chosen to assure effective results. Annual Programme analysis involves the issues that should be assessed each year while a more comprehensive analysis of the Programme is done for external evaluation in more detailed to cover various issues of studies. All the internal surveys comprise the issues of primary significance so that not to overload respondents with questions of minor importance. Besides, all the surveys include open questions asking to give comments in boxes for free-text remarks, and these course-specific recommendations lead to improvement.

Results of internal assessment (surveys, stakeholder discussions, statistical data, etc.) are applied to improve quality of studies.

The results of teaching quality assessment are used for teaching quality improvement and teacher professional development. Teachers have online access to the survey results and get acquainted with the feedback for their study courses. The survey results are also obtained by the SPC chairperson, and the main trends of the teaching quality are discussed in the SPC meetings, decisions are made what improvements in teaching should be taken.

However, there is often a lack of student activism in assessing the quality of teachers' work. Due to the low number of students participating in the survey, a statistically representative sample does not form a basis on which reliable conclusions can be drawn. In the absence of a sufficient number of respondents, interviews and discussions with students take place and the situation is clarified during them. Teachers discuss the principles of teaching and assessment with students during introductory lectures, and remind students of their obligation to actively participate and evaluate the work of teachers at the end of the course.

All decisions regarding studies (including issues on assessment and improvement) are publicized for stakeholders by different channels. The Chairperson of SPC publicize information for the teachers, social partners and other stakeholders (the Director of the Institute, the Dean of the Faculty, the Chancellor of the Academy, etc.). The Student representative in the SPC publicize the decisions to other students of the study programme.

When surveys are organised, in 3 months the summarized results of the feedback data analysis are presented to social stakeholders who have provided feedback as well as other representatives of the University's social stakeholders. The results are publicized on VMU website, emailed to students and teachers, stored in Outlook folders, delivered in social media, and shared by other channels.

7.4. Evaluation of the opinion of the field students (collected in the ways and by the means chosen by the Centre or the HEI) about the quality of the studies at the HEI

In the surveys, students expressed their opinion about the studies, assessed the quality of the study practice, indicated the skills they acquired or developed while studying, and also named what they liked most and what they lacked while studying at Vytautas Magnus University.

According to the survey "EXIT2020" (four-point scale, when 4 - the highest grade), the students of the II cycle *Land Use Planning* programme evaluated the assistance provided by the administrative staff and the suitability of the equipment of auditoriums, laboratories and other study premises even with 3.94 points; with 3.90 points - the opportunity for international mobility. Students lack opportunities to learn various foreign languages (3.08). The students evaluated the usefulness of the preparation and defence of the final thesis with 3.75 points, when with 4.00 points evaluated the possibility to deepen the skills in their field, and the lowest - 3.44 points rated the improvement of creativity skills. It is also worth noting that 75% of students' work is related to the completed study programme and appreciates VMU's contribution to the preparation for professional activities. The students evaluate the generalized quality of the study programme with 3.77 points, and with 3.80 points - they would recommend others to study in this programme. According to the results of the survey "Assessment of Teaching and Studying" (ten-point scale, when 10 is the highest grade), the average assessment of teaching quality is 9.88 points. It is worth noting that students only positively assessed the work of teachers, their applied study methods, which encouraged active involvement in the course. The students also indicated that the teachers clearly presented the study content and

supplemented it with examples and comparisons, the teaching was well organized. Students evaluated their work during their studies (attending classes led by the teacher, performing tasks given by the teacher, etc.) as follows: 29% - excellent, 65% - very good, 7% - good.

The opinion of the graduates is also relevant in presenting the results of the surveys of the students of the I cycle *Land Use Planning* programme, as a large part of the studies of this programme is integrated into the *Land Use Planning* specialization. The students of the survey "EXIT2020" (four-point scale, when 4 is the highest grade) evaluate the studies of the I cycle *Land Use Planning* programme with 3.67 points. The students rated the possibility of receiving a teacher's consultation and the suitability of the equipment of auditoriums, laboratories and other study premises the best (with 3.84 points). However, students lack the opportunity to learn various foreign languages (3.23) and a clearer system for choosing parallel studies (3.33). The quality of study practice is assessed with 3.63 points. Students report that the internship was useful, related to their studies, and met students 'expectations (3.93), but points to a lack of internship duration (3.07). With a score of 3.76, students also evaluate the importance and usefulness of the final thesis, where they improved their analytical thinking (3.86) and oral presentation (3.85) skills. Also, as many as 79% of students report that there was a smooth collaboration with the final thesis supervisor. The students evaluate the generalized quality of the study programme with 3.64 points, and with 3.29 points - they would recommend others to study in this programme.

Students positively evaluate the quality of studies, the content of the programme, the location of the University, as well as the cooperation, support and understanding of teachers, and indicate that the knowledge and skills acquired during lectures, seminars, laboratory work and study practice were most useful in preparing for professional activities. However, they note that there is a lack of classes outside the University and the duration of internships is too short. The results of the student survey "Assessment of Teaching and Study" (ten-point scale, when 10 is the highest grade) showed that students rated the work of teachers with 7.67 points. Students rated the professional ethics of teachers (8.35) and the basic study information provided by teachers in VMU Moodle or another distance learning environment (8.20). However, clearly defined evaluation criteria are most lacking (7,11). However, as many as 70% of students evaluate their work during their studies (attending teacher-led classes, performing tasks given by the teacher, etc.) as excellent, 12% as very good, 16% as good, and 2% as very bad.

The results of the whole renewed study programme *Water and Land Engineering* (similar in nature to the above-mentioned surveys) are difficult to assess due to the lack of student activity. Due to the small number of students participating in the surveys (1 student participated), there is no statistically representative sample on the basis of which reliable conclusions can be drawn. Therefore, after the end of the first year of studies and the beginning of the second year, it is expedient to plan interviews and discussions with students and during them to find out the current situation.

Expert recommendations provided during the last external evaluation related to *Study quality management and publicity*			
No.	*Recommendation*	*Actions taken by the HEI*	*Comments*
I cycle Water Resources Engineering study programme			
1.	When implementing the study programme, we recommend to involve social partners in the teaching process, to ensure more active participation of teachers in improving the study programme and its courses, and to carry out constant monitoring	The social partners, together with teachers and student representatives, actively participate in the activities of the study programme committee, contribute to the preparation of study course descriptions, organizing student internships (accepting students for internships in companies or institutions) or study trips, during which students are directly acquainted with cooperates with institutes in developing the content of the study programme. The social partners are also involved in teaching certain courses, collaborating on joint projects and events.	

	and updating of the study programme according to students' needs.	During them, students deepen the competencies and skills required for professional activities and integration into the labour market. In the renewed study programme in 2020, students are free to choose Group A and B courses, the list and content of Group C courses have been substantially adjusted. All teachers participated in the updating of the programme, adjusting the descriptions and discussing the structure of the programme at the meetings of the Institutes. Monitoring is ongoing.	
II cycle Land Use Planning study programme			
2.	Improvements of study programme should be very well documented.	Improvements in study programmes are discussed at the meetings of the SPC and the supervising programme or programme specialization institute, and are consistently set out in the protocols of these meetings. The final improvements considered and decided by the SPC are approved by the Faculty Council, the University Rectorate and the Senate. All protocols and resolutions related to the improvement of study programmes are forwarded to the chairman of the study programme committee and the vice-dean of the faculty responsible for the study programmes.	

Please provide main results of the self-evaluation in the area of *Study quality management and publicity*
Strengths
1. The management of the study programmes takes place in accordance with the established regulated procedure, which provides for the responsibility of each programme's participant - the Academy Council, Chancellor of the Academy, the Faculty Council, the Programmes Committee, Dean of the Faculty and Director of the Institute. This provides for a clear division of responsibilities, with content matters being decided by the Committee and the board, and administrative matters by the directors of the institutes and the Dean and administration. 2. The results of study quality surveys are disseminated through various means and this allows for sufficient feedback to stakeholders. 3. An effective and functional system of internal quality assurance of the study programmes, which can effectively and timely influence the management and publicity of study quality. 4. The internal quality assurance system of the study programmes includes all social stakeholders (teachers, administration, students, employers). The opinion of social stakeholders is used to improve the quality of studies.
Areas for improvement
1. There is a need to increase the dissemination of information on the benefits of surveys for the quality of studies to students, to identify strengths and areas for improvement and to increase the number of meetings with students and teachers, and to provide clear performance criteria to improve curricula, and to carry out the updating of study programmes according to the needs of students. 2. Involve more students, graduates, and employers in surveys conducted during studies, after graduation, and 12 months after graduation in order to get a clearer picture of the quality of study programmes, study and evaluation methods and aspects to be improved. Actions: keep in touch, organize meetings-discussions, emphasizing the importance of such surveys with all above mentioned persons.