VYTAUTAS MAGNUS UNIVERSITY

Field of Study:

CIVIL ENGINEERING (E05)

Study cycle: Second

SELF EVALUATION REPORT

May, 2021

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.	Hydraulic Engineering	6211EX027	University studies	Second	Full-time (2 years), part-time (3 years)	120	Master of Engineering Sciences	Lithuanian, English	Bachelor degree	1992	-	

Self-Evaluation Group

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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 subjects, ensures that the studies offered at VMU are comprehensive, they are not restricted to specialized, pre-defined subjects. 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 (hereinafter AA or the Academy), Education Academy, Music Academy, Innovative Studies Institute, Institute of Foreign Languages, Botanical Garden.

AA - University academic division, that conducts and coordinates nationally and internationally competitive studies and research in bioeconomics, agricultural sciences and other fields closely related to agriculture and rural development (including technological and engineering studies), as well as experimental, social and cultural development works, provides professional development, expert, consulting, science commercialization and technology transfer services. AA was established in 2018 and continues the activities of Aleksandras Stulginskis University (ASU, 2012–2018), Lithuanian University of Agriculture (1996–2012) and Lithuanian Academy of Agriculture (1924–1996).

The Faculty of Water and Land Management (Department of AA, hereinafter referred to as the Faculty) was established in 1946 and in the same year admitted the first students to specialties training future hydraulic engineering and land use planning engineers. Since the introduction of two-cycle studies in 1992, the Faculty has released 26 master's and 24 bachelor's editions of graduates in hydraulic engineering.

Currently, the Faculty conducts studies in the fields of Civil Engineering (programmes: Hydraulic Engineering – first and second cycle) and Environmental Engineering (programmes: Land Use Planning – first and second cycle, Water and Land Engineering – first cycle). Due to the low number of students in 2020, the former first cycle Hydraulic Engineering programme, after adjusting its content, was integrated into the programme Water and Land Engineering (Environmental Engineering study field) with a separate Hydraulic Engineering specialization in order to expand the programme graduates' activities and to orient them into the broader field of "land use planning and water resources engineering". A more detailed analysis of the first cycle

Hydraulic Engineering programme is not fulfilled, as the admission to the studies of this programme was last carried out in 2018. As a result, the self-evaluation presents the only second cycle programme in the field of civil engineering, Hydraulic Engineering.

The Faculty consists of the Institutes of Hydraulic Engineering, Water Resources Engineering, Land Use Planning and Geomatics. The staff of the Faculty institutes report directly 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, evaluation of study courses, 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 the study programmes and main research directions of the Faculty. The Council also makes decisions on the most important issues of the organization of the Faculty's activities.

The most important research fields of the Faculty related to Civil Engineering:

- Physical and digital modelling of hydraulic and hydrological 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;
- Drainage and irrigation systems, change of water balance elements;
- Water pollution and its reduction measures, restoration of damaged aquatic ecosystems;
- Management and sustainable use of water resources (hydropower, flood risk management, inland waterways, renovation of water bodies).

The researchers of the Faculty work in the Water ecosystem research and modelling laboratory of the Biosystems engineering, biomass energy and water engineering centre[1] of the science, studies and business centre “Slėnis Nemunas”.

In 2014, the external evaluation of the first and second cycle Hydraulic Engineering study programmes was performed by an international group of experts headed by Prof. Philippe Bouillard and members of the group: Prof. Roger Frank, Prof. Soon-Thiam Khu, Assoc. prof. dr. Vincentas Vytis Stragys and student Martynas Ubartas. Both (first[2] and second[3]) cycle programmes were evaluated positively and accredited for 6 years. The evaluation recommendations and how they were taken into account are described after each section.

ANALYSIS OF FIELD AND CYCLE 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

The conclusions of the United Nations report "Water in a changing world" emphasize that global water demand is rising sharply due to accelerating population growth, changes in food consumption and growing energy production[4]. When the use of water resources is regulated by means of cooperation, tolerance and mutual respect, the most advanced engineering instruments can pave the way for sustainable and peaceful development in social, economic, political, cultural and ecological aspects.

[1] Access through the internet: https://zua.vdu.lt/en/research/infrastructure/centre-of-biosystems-engineering-biomass-energetics-and-water-engineering/
[2] Access through the internet: https://www.skvc.lt/uploads/valuations/docs/433973_ASU_HSI_BA_2014.pdf
[3] Access through the internet: https://www.skvc.lt/uploads/valuations/docs/433974_ASU_HI_MA_2014.pdf
[4] Access through the internet: https://unesdoc.unesco.org/ark:/48223/pf0000181993.page=5

The need for water engineering specialists in the world has increased due to large-scale water resource management problems. As public concern about environmental issues grows, so does the demand for environmentally friendly technologies. Complex projects for drinking water supply, wastewater treatment, flood protection, irrigation and drainage of agricultural fields and other projects are being prepared, the quality of which depends on the skills and abilities acquired by specialists.

Looking at global practice, hydraulic engineering (water construction and technology) studies also have a deep interdisciplinary (civil engineering and environmental - water engineering) study tradition.

The construction sector, in which water engineering plays an important role, is one of the most important branches of the Lithuanian economy, generating 8.3% of the country's GDP[5]. A similar number is given in the EU. This branch can be competitive in Europe and the world today only if it is constantly modernized, using the latest technologies and techniques. In 2019, there were 1,374 million employees in the country, of which 100.1 thousand or 7.3% of all employees worked in the construction sector. However, this study programme is more focused on hydraulic engineering, one of the integral parts of civil engineering.

In the field of hydraulic engineering and hydraulic structures exploitation, there are about 120 companies (of which over 50 belong to the Lithuanian Association of Land Reclamation Companies), which employ over 5,000 employees. These and other companies in Lithuania drained and cultivated 2.6 million hectares of waterlogged agricultural land, laid 17 thousand km of local roads and streets[6]. They built 750 dams of various sizes, about 500 pumping stations, 100 hydroelectric power plants and 2 thousand reinforced concrete and other bridges, a total of over 70 thousand various hydraulic structures. Complex structures have been and are being built on main roads and railways, large wastewater treatment plants, urban engineering networks as well as the Baltic Sea embankments in Klaipėda port are being reconstructed.

The part of hydraulic engineering also includes companies performing water management design works, of which there are over 40. The largest of them is UAB "Sweco hidroprojektas" located in Kaunas, which researches and designs water management objects for various purposes. The company currently has 120 employees, including 90 engineers with a university degree. There are also a number of individual water management design companies.

Hydraulic engineering specialists dominate in the administrations of companies and in the composition of engineering and technical personnel. The introduction of more advanced and efficient technologies has led to a small reduction in executive staff. The scope of hydraulic engineering design and contracting works has remained similar for many years and will not increase significantly in the near future.

Today, there are 373 drinking water suppliers in Lithuania, servicing about 70 drinking water supply companies established and controlled by municipalities, and taking care of wastewater management[7].

According to the project calculations, the successful operation and development of the hydraulic engineering sub-sector in the period of 2021–2024 requires an average of 42 university bachelor's and 16 master's degree specialists in hydraulic engineering[8]. Meanwhile, the report on the need for agricultural specialists in 2020 states that in 2025–2028 the successful operation and development of the hydraulic engineering sub-sector should be supplemented with a smaller number of employees each year - 26 university bachelor's and 10 master's degree specialists in hydraulic engineering[9]. Currently, the number of second cycle hydraulic engineering graduates

[5] Access through the internet: http://www.statybininkai.lt/lt/lietuvos-statyb%C5%B3-sektorius
[6] Access through the internet: http://www.lmia.lt/
[7] Access through the internet: http://www.lvta.lt/
[8] Access through the internet: https://zum.lrv.lt/uploads/zum/documents/files/2016%20Specialistu%20poreikis%20II.pdf
[9] Access through the internet: https://zum.lrv.lt/uploads/zum/documents/files/PATIKSLINTA%20%C5%BDem%C4%97s%20%C5%ABkio%20ir%20kaimo%20p

meets the estimated need, but this number of graduates does not meet the needs of first cycle university graduates at all.

According to the study of Lithuanian economic territories specialization, conducted in 2017, the construction sector throughout Lithuania is a growing sector, but concentrated in central and western Lithuania[10]. The study envisages long-term development trends in the construction sector:

- the growing demand for environmentally friendly construction is forcing changes in the technologies used in construction;
- the construction sector is increasingly using IT solutions, such as 5-DBIM, to visualize the functional characteristics of five dimensions;
- digital construction is needed to achieve the required productivity, adapting internet of things solutions to connect different processes.

According to the professional standard of the Construction sector[11], the results of the first cycle programme are mainly focused on the qualification requirements of a junior civil engineer (qualification level VI) for construction and operation supervision of hydraulic structures, while the results of the second cycle programme focuses on the qualification requirements of a civil engineer (qualification level VII) for design, construction and maintenance supervision as well as the intended field of construction activity.

The aim of the second cycle study programme "Hydraulic Engineering" (hereinafter - the Study Programme or Programme) is to prepare highly qualified engineering specialists capable of conducting scientific or applied research, evaluating water management structures and their impact on the environment using advanced scientific methods, integrating knowledge from different fields to solve theoretical and practical problems of water management, to analyse and model the changes of the environment as well as phenomena and processes of engineering nature with the latest information technologies.

The peculiarity of the competencies of the graduates of this programme is that some of the competencies are focused not only on Civil Engineering, but also on interdisciplinary activities, primarily in the fields of environmental engineering and agricultural sciences, which are closely related to water engineering. There are no similar programmes at other universities in the country. These are technical preconditions for the development of Lithuanian water management activities and to be competitive in today's reality. The study programme is the only second cycle programme in the field of civil engineering that prepares the masters of civil engineering necessary for the proper development of rural water management. These include the reconstruction of a more than 1.5 million-hectare drainage system (which in critical condition) installed more than 50 years ago, the installation of intelligent humidity control systems, the implementation of drainage and sewage treatment technologies based on research results, and the application of digital construction principles in the hydraulic engineering sector.

Graduates of this study programme successfully work in the companies and institutions of design, construction, maintenance and management of hydraulic structures, water supply and wastewater disposal (e.g. waters of Kaunas and other cities or towns) and waste management companies, environmental protection services, hydropower (Kaunas HPP, Kruonis PSPP, small power plants), bridges, inland waterway companies, ports, land reclamation, consulting companies and state institutions, as well as private companies and educational institutions. Main object of activity: design of hydraulic structures of unlimited complexity, high reliability class, supervision of their design and construction, maintenance of their construction, supervision of maintenance of their use, engineering research and supervision of engineering research, design of their construction and construction expertise, management of project and construction expertise.

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[10] Access through the internet: https://www.lietuvosregionai.lt/lt/9/news/kauno-regiono-naujienos/kauno-regiono-pletros-taryba-svarste-galimus-kauno-regiono-specializaciju-scenarijus-2383.html

[11] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/fa23e8d0a47f11e9b474d97de297fe08

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

In 2020, the VMU Senate and the Council approved the new VMU Strategic Plan for 2021-2027[12]. It envisages **VMU VISION:** VMU is one of the strongest, wide-ranging universities in the Baltic region, fostering the principles of *Artes Liberales*, bringing together a community to build the future of Lithuania and Europe. **VMU MISSION**: To be the community institution of science, arts, and study which continues the mission of the University of Lithuania, established in Kaunas in 1922, creating liberal learning conditions for an individual, developing partnerships and taking an active part in the life of Lithuania to advance its future and contribute to the global cultural and academic development.

There are 5 strategic objectives:

- Community in harmony and consolidation;
- International research university;
- „Studies 360“;
- Integrity of self-governance and responsibility;
- University impact on societal development.

VMU Agriculture Academy (hereinafter AA or the Academy) MISSION. We, VMU AA community, are creating and disseminating scientific knowledge, sincerely striving for safe and healthy food and full-fledged living environment for every citizen of Lithuania[13]. Our steps to this major aim include:

- Training of leaders and development of their ability to create and share their knowledge, endeavour and desire for continuous improvement;
- Creation and dissemination of biological, engineering and social technologies, advanced knowledge and experience in sustainable use and development of land, forest and water resources;
- Fostering of achievements and long-standing traditions of University activity, building our work on the most important professional and universal values.

VMU AA VISION. Academy is open to challenges and changes, adopts the best experience of the world class universities, develops internationality, serves own country, seeks continuous improvement and leadership among the universities of the same area.

Item 5.3 of the VMU Strategic Plan provides: „Seek leadership in the training of agricultural specialists and in the development of Agriculture, Forestry, Water Management and Rural Development Policies“. The objective of the programme (to train highly qualified engineering specialists capable of conducting scientific or applied research, evaluating water structures and their impact on the environment using advanced scientific methods, integrating knowledge of different fields to solve theoretical and practical water management problems, analyse and model environmental changes and engineering phenomena with the latest information technologies and processes) 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 implementation of the mission and vision of VMU AA (defined by the goal of providing the population with safe and healthy food and a complete environment) in the global market is not possible without modern technical solutions. The aim and study results of the study programme (for example, “To design modern water management structures and engineering systems taking into account long-term environmental impact forecasts, to provide project proposals on water quality

[12] Access through the internet: https://www.vdu.lt/wp-content/uploads/2021/05/VDU-strategic-plan-for-2021-2027.pdf
[13] Access through the internet: https://zua.vdu.lt/en/about-academy/characteristics-of-the-present/

improvement and rational use"; "To identify and solve water engineering problems, understand the applied methods and methodologies and their limitations, to choose engineering equipment and software, know the principles of organization of engineering activities, use modern technologies that conserve land and water resources") correspond to the above-mentioned mission and strategic tasks" of VMU AA, related to the development of engineering technologies, dissemination of the most advanced knowledge and experience in the sustainable use and development of water resources.

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

The composition of the study programmes complies with all the legal acts regulating the studies: the requirements of the general scope, the scope of the subjects of the study field and the scope of the final thesis, as well as the scope of contact and individual work.

The study programme consists of: compulsory study courses of the field (90 ECTS with the research paper and final thesis), compulsory study courses of other fields (12 ECTS), and optional study courses (18 ECTS). The scope of research paper is 12 ECTS and final paper is 30 ECTS. The composition of the study programme is in conformance with general requirements of studies[14]. This conformity is presented in Table 1.1.

Table 1.1. 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	90 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	25 % (800 hours)
Individual learning	No less than 50 % of learning	75 % (2400 hours)

The study programme meets the following requirements:

- The Descriptor of Study Cycles[15] in terms of the programme goals and learning outcomes that are specific for the second study cycle.
- The Descriptor of the study field of Engineering[16] in terms of the programme goals, learning outcomes and the content of the programme courses;
- Competence requirements for a civil engineer provided in the professional standard of the construction sector (second cycle, VII qualification level)[17].

The study programme plans of full-time (2 years, 4 semesters) and part-time (3 years, 6 semesters) study forms with the duration and distribution of contact and independent work are presented in Tables 1 and 2 of Annex 1.

Learning outcomes are the basis for the scope of the courses, and the allocation of ECTS depends on the nature and complexity of learning outcomes. When learning outcomes are more complex, a higher number of students working hours is planned in the course, and more credits are assigned for such a course comparing to the one that covers learning outcome of a lower complexity. Student workload encompasses a standard, usual number of hours necessary to complete the activities that have been planned in the course. Student workload includes their time in

[14] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/739065a0ce9911e69e09f35d37acd719/asr
[15] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/775fbb90ac0711e6b844f0f29024f5ac
[16] Access through the internet: https://www.skvc.lt/uploads/documents/files/EN%20versija/Quality%20Assurance/Study%20programme%20descriptions/KVS.pdf.
[17] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/fa23e8d0a47f11e9b474d97de297fe08

classes, laboratories, internship placements, making individual or group assignments, preparation for assessment, etc. 1 ECTS corresponds to 26,67 hours of usual student work time.

The programme consists of only 6 ECTS courses (except for the final thesis - 30 ECTS). The scope of contact work in teaching the courses of the programme in 2017-2019 was determined by the methodology developed by ASU, allocating 42 hours. From the 2020/2021 academic year according to the VMU Rector's Order of 8 July 2020 No. 352 "On the calculation of pedagogical workload of teachers" methodology, 60 hours of contact work and 100 of independent work are allocated for 6 ECTS credit courses (for study programmes of engineering sciences study field).

During the research work in the 2nd and 3rd semesters, 157 hours are allocated to individual work, during which the research object is selected, a literature review is prepared, the research equipment is learned to be used, the equipment is calibrated, and preliminary research is performed. 30 credits (786 hours of individual work) were allocated for the preparation of the master's thesis (completion of research, statistical evaluation, submission to the institute, as well as defence in public).

The qualification requirements for the staff implementing the programme are evaluated in Chapter 5 and by presenting the compliance between research and courses taught in the table in Annex 2.

The calculation of student workload and ECTS allocation is systematically revised. The essential criterion for determining the forms of assessment, the scope of contact and independent work hours in study courses are the outcomes of the study course.

For the last time in April-May 2020, the study programme committee evaluated the composition of the programme, the compliance of the subject content with the study cycle and academic requirements, and the sufficiency of the scope of the programmes to achieve the study outcomes.

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.

The coherence between the aim of the study programme, the intended learning outcomes of the programme and the study courses are presented in Table 1.2.

Table 1.2. Coherence of the field study programme aims and intended learning outcomes with the programme courses

The aim of the second cycle study programme *Hydraulic Engineering*		
To train highly qualified engineering specialists capable of conducting scientific or applied research, evaluating water structures and their impact on the environment using advanced scientific methods, integrating knowledge of different fields to solve theoretical and practical water management problems, analyse and model environmental changes, engineering phenomena and processes using the latest information technologies.		
Description of learning outcomes	Intended learning outcomes of the Programme	Study courses of the Programme

Knowledge and abilities	To creatively apply the basics of natural sciences and mathematics and the basic principles of civil engineering and law to solve new engineering problems in hydraulic engineering, taking into account the latest achievements in the field of civil engineering.	Restoration of Disturbed Water Ecosystems; Building Legal Regulation; Optimization of Hydraulic Construction Works Processes
Engineering analysis	To collect the information necessary for engineering activities, systematize, analyze and use it to solve solutions by applying theoretical and research methods, to see and solve standard and non-standard engineering problems when detailed information is lacking.	Research Methodology; Optimization of Civil Engineering Works; Reliability of Building Structures; Research Work -1
	To apply water regime calculation and forecasting methods in the design of hydraulic structures, organizing the construction and operation of these structures, evaluate theoretical and practical innovations and respond to changing conditions.	Urban Hydrology; Optimization of Civil Engineering Works
Engineering design	To design modern water management structures and engineering systems taking into account long-term environmental impact forecasts, to provide project proposals on water quality improvement and rational use.	Computer Design of Hydraulic Structures; Restoration of Disturbed Water Ecosystems; Urban Hydrology
Fundamental and applied research	To identify, systematize and evaluate the data required for the engineering activities of hydraulic engineering using databases and other sources of scientific and engineering information.	The Research of Hydraulic Structures; Research Work -1
	To plan and perform analytical, modelling and experimental research necessary for the organization of construction, reconstruction and operation of hydraulic structures, to critically evaluate research data, substantiate and present conclusions to stakeholders of various backgrounds.	The Research of Hydraulic Structures; Hydrologic Modelling System; Research Methodology; Reliability of Building Structures; Research Work -2; Final Work of Master Degree
Solution of engineering tasks	To identify and solve water engineering problems, understand the applied methods and methodologies and their limitations, to choose engineering equipment and software, know the principles of organization of engineering activities, use modern technologies that conserve land and water resources.	Management of Investment Projects; All elective courses
Personal and social abilities	To work independently and in a team, to be a team leader, to communicate matter-of-factly with the engineering community and the general public on a national and international scale.	All courses
	To understand holistically the impact of engineering solutions on society and the environment, to be guided by professional integrity and ethical values, to understand the responsibility for hydraulic engineering activities, to evaluate and administer local and international projects in the fields of water protection, management and civil engineering.	All courses

The study courses use the forms of assessment provided for in the Vytautas Magnus University Study Regulations[18] for individual and group, laboratory work and course project defences, colloquium reports, exam passing, etc. Reports are also organized remotely in accordance with the Description of the Procedure for Organizing Distance Studies[19].

The implementation of the study programme 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 preparation and presentation, information analysis and summarization, video review, etc.

Study methods are defined by various forms of communication with students (lecture, seminar, laboratory, and practical works). An example of the coherence of the field study programme learning outcomes with the learning outcomes of the programme course, study methods and assessment methods is presented in Table 1.3.

Table 1.3. Coherence of the field study programme learning outcomes with the learning outcomes of the programme course (Inland waterways engineering), study methods and assessment methods

Learning outcomes of the study programme	Learning outcomes of the study field course	Study methods of the study field course	Assessment methods of the study field course
To creatively apply the basics of natural sciences and mathematics and the basic principles of civil engineering and law to solve new engineering problems in hydraulic engineering, taking into account the latest achievements in the field of civil engineering.	1. Knowing the current situation of inland waterways, students will be able to assess and analyse the existing problems in this area. 2. Students will be able to make qualified decisions in the field of modernization of inland waterways and technologies of construction works.	Teaching and illustrating the material, asking questions and answers, analysing documents	Assessment of theoretical knowledge by survey and in writing (test form).
To collect the information necessary for engineering activities, systematize, analyze and use it to solve solutions by applying theoretical and research methods, to see and solve standard and non-standard engineering problems when detailed information is lacking.	3. Will be able to collect and systematize the data required for the design of waterways and hydraulic structures in them. 4. Will be able to assess and apply the environmental requirements of designed and existing structures on inland waterways.	Interpretation; discussion, formulation, interpretation of practical tasks, document analysis	Assessment of theoretical knowledge by survey and in writing (test form). Evaluation of a practical case study. Evaluation of the implementation of individual tasks by means of a survey.
To identify and solve water engineering problems, understand the applied methods and methodologies and their limitations, to choose engineering	5. Acquire skills in solving various tasks in the field of construction of inland waterways and hydraulic structures in them. 6. Will be able to	Interpretation; discussion, formulation of practical tasks or problems and	Assessment of theoretical knowledge by survey and in writing (test form). Evaluation of a

[18] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/12/Study_Regulations-2020-SEN-069.pdf
[19] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/02/Nuotoliniu_studiju_tvarka.pdf

equipment and software, know the principles of organization of engineering activities, use modern technologies that conserve land and water resources.	independently apply modern construction technologies and tools. 7. Will be able to assess the economic and social benefits of decisions made.	demonstration of solutions.	practical case study. Evaluation of the implementation of individual tasks by means of a survey. Presentation and defence of practical work.

In order to achieve the maximum learning outcome, the division supervising the professional development of teachers - the Institute of Innovative Studies, the Study Quality Unit and the Professional Development Centre organizes teacher training to use a variety of assessment methods, achieve coherence between learning outcomes and study methods, and harmony between study and assessment methods. The aim of preparing and updating study course descriptions is to harmonize the aim of the study programme, learning outcomes and study and assessment methods.

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

The courses of the study programme are arranged in a consistent manner so that the knowledge and skills acquired during them help to carry out research. Theoretical courses (Computer Design of Hydraulic Structures, The Research of Hydraulic Structures, Restoration of Disturbed Water Ecosystems, Building Legal Regulation, Urban Hydrology) studied in the first semester of full-time studies are necessary to form the scientific idea of the final thesis (aim and main tasks of the research). In the second semester, to study research methodologies and other courses (Hydrologic Modelling System, Optimization of Hydraulic Construction Works Processes) that create preconditions (necessary outcomes) to plan theoretical and/or experimental research, to choose experimental and measurement equipment. During the research work, the research methodology, outcomes analysis and assessment methodology, preliminary research and initial outcomes analysis are prepared. In the third semester, selected in-depth study courses are studied, research is carried out according to the prepared methodology. In the fourth semester, the outcomes obtained during the research work are analysed and summarized, a scientific publication is prepared and presented at a conference, and the final thesis is completed. The plan of part-time studies is set out on the same principle. The study programme implementation plans, which also show the consistency of the study courses, are presented in Tables 1 and 2 of Annex 1.

The scope of student workload and the distribution of ECTS are systematically reviewed and, if necessary, changed (at least once per academic year). Taking into account the rapid improvement of technology and the constantly expanding need for technical knowledge, the outcomes of the study programme and the outcomes of study courses closely related to them are periodically updated.

Short descriptions of study courses are available on the VMU study programme website[20]. Full course descriptions and annual course teaching descriptions are provided 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

[20] Access through the internet: https://www.vdu.lt/lt/study/program/subject/311/

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[21].

The study programme gives the freedom to individualize studies. After choosing the topic of the final thesis, a plan of research (12 ECTS) and final thesis (30 ECTS) is formed from the proposed research topics carried out in the institutes. It is possible to choose courses (18 ECTS) to acquire the lack of knowledge and skills, but a profitable group (at least 6 students) is a prerequisite for choosing courses. Elective courses form the ability to solve engineering problems - identify and solve water engineering problems, understand the applied methods and methodologies and their limitations, be able to choose engineering equipment and software, know the principles of engineering, use modern technologies that conserve land and water resources. In the third semester, a full-time student chooses three courses from a list of electives. A part-time student chooses one study course in the fourth semester and two study courses[6] in the fifth semester.

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[22]. General Order on the Final Theses Preparation and Defence (hereinafter – Order) 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 are set by Faculty[23]. In accordance with a specific study programme, they set the requirements for final theses, their preparation, defence, and special evaluation criteria.

Until 2018, the final theses were prepared in accordance with the methodological requirements prepared by the Faculty, which were updated in 2019 in accordance with the VMU Study Regulations and the Description of the General Procedure for the Preparation and Defence of Thesis. Students can defend their final theses after completing the study programme courses. 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.

The content of the final theses and their compliance with the field studies are analysed by the meeting of the institute. The most common topics of final theses are related to the assessment and renewal of the condition of hydraulic engineering, land reclamation, port structures, water supply and sewage engineering networks, and the durability, strength or other properties of building materials used in these structures. When ordering research, the social partners of the higher school also initiate the topics of the final theses, for example, The analysis of the drainage and further use of the soil excavated in the docks of Klaipėda port; Reconstruction possibilities of wastewater treatment plants with aeration channels; Impact of regulated drainage in Rietavas municipality Šiuraičiai village and Kaunas district on runoff, water quality and the environment; Estimation of deformations of drainage ditches by remote methods; Possibilities of fish migration restoration in the Nemunas near Kaunas city; Influence of unidirectional deformations of filtration materials used in drainage systems on the size of holes; Investigations of the change of the beach shore near Giruliai after sand replenishment in 2001-2019 in the coastal zone; Road embossing technology research; Influence of changes in groundwater level of Klovainiai dolomite quarry on pump efficiency; Multi-criteria analysis of the relevance of surface wastewater management in Vilnius city sub-districts; Analysis of the use of wastewater networks in Kaunas and Vilnius for electricity production, etc. The list of all defended theses in 2017-2020 is presented in Annex 2.

[21] Access through the internet: https://www.vdu.lt/wp-content/uploads/2012/04/ORDER-ON-INDIVIDUAL-STUDIES-ORGANIZATION.pdf
[22] Access through the internet: https://www.vdu.lt/wp-content/uploads/2021/05/ENG-Baigiamuju-darbu-rengimo-ir-gynimo-aprasas-version-2020-05-14.pdf
[23] Access through the internet: https://zua.vdu.lt/wp-content/uploads/2019/01/Magistranturos-baigiamojo-darbo-rengimo-metodiniai-2019.pdf

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 Final Thesis Evaluation Commission, who submits the report to the Faculty Council, which approves/does not approve the chairman's report.

On the recommendation of the Dean of the Faculty or the head of the programme group for the public defence of final theses, a commission for the assessment of the defence of 3–5 persons is formed from the study field experts - scientists (artists), practitioners, social partners. The chairman of the commission or at least one member of the commission must be from another institution (social partners, alumni or other universities, researchers from scientific institutions). The head of the study programme committee participates in the defence of the final theses.

The final thesis is defended only in case of approbation of research results at the conference and publication in a scientific journal or science publication. Otherwise, it is not allowed to defend the final thesis in public.

Expert recommendations provided during the last external evaluation related to *Study aims, outcomes and content*			
	Recommendation	*Actions taken by the HEI*	*Comments*
1	1. According to the expert group, the expected learning outcomes of the programme are well defined, but it is recommended to implement measures to develop students' competencies related to research and independent thinking.	The descriptions of all the courses of the programme have been updated (as well as the main subject "Research Methodology"), to include more activities that develop students' competencies related to conducting research and independent thinking. Students are also involved in R&D project activities.	
2	2. Aleksandras Stulginskis University recognizes that the international competitiveness of the programme is a weakness of the study programme; the solution to this problem should be reflected in the composition of the programme.	In its content, the programme is specialized, representing the field of water engineering, and focused on the national level. However, the graduates of the programme (both Lithuanians and graduates from foreign countries) are successfully working in the international market as well, therefore no any changes are planned.	
3	5. The system for assessing coursework, internships and bachelor's final theses should be clearer, especially to assess students' ability to conduct research.	The assessment criteria have been revised and adjusted by updating the descriptions of all courses of the programme.	The recommendation places more emphasis on the study form of the bachelor's study programme

Please provide main results of the self-evaluation in the area of *Study aims, outcomes and content*
Strengths
1. The second cycle study programme in the evaluated field of Civil Engineering is unique in its aims, outcomes and content, and the only one in Lithuania that prepares civil engineers for a wide range of water engineering (land reclamation, hydropower, water supply, water treatment, etc.), which ensures a reliable graduate employment niche.
2. The programme is consistent, with logical connections between individual groups of courses, meeting the applicable general requirements for study programmes, the provisions of the description of the field of engineering sciences and the professional standard of the construction

sector.
3. When commissioning research, the social partners of the higher school also initiate the topics of the final theses.

Areas for improvement

1. Consistent monitoring of study programmes, based on data from student surveys, observations of employers and taking into account changes in the labour market of water engineering specialists, will also make it necessary to adjust the content of the study programme and, if necessary, its implementation processes.

2. LINKS BETWEEN SCIENCE (ART) 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

During the 2018 international comparative expert evaluation of R&D activities of the University (during the evaluation of Aleksandras Stulginskis University Biosystems engineering evaluation unit), the quality of Civil Engineering R&D activities was assessed with 3 points out of 5 possible (ongoing research is high level and recognized nationally with limited international recognition). 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 evaluated 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). During the international evaluation, the experts noted that the Faculty carries out high-level, nationally recognized scientific activities. Employees publish research results in highly ranked, well-known scientific publications, although the number of employees is not large. Some of the articles cited reflect the latest trends in science. The staff of the Faculty participates and reads oral presentations at well-known international conferences taking place in various European countries. Funding for R&D activities comes from both national and international institutions. Faculty members are actively involved in R&D projects, including those for which financial support is provided by international institutions.

The outcomes 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 Civil Engineering. In 2017-2019, for a formal evaluation, 1 conditional researcher working full-time scored an average of 6.39 points (the average in this field in Lithuania was 6.36). The aim of the annual formal evaluation is for researchers and other R&D performers to continuously improve their scientific qualifications and to carry out research of the highest possible quality and to publish their results in the most prestigious and read scientific journals or in the most prestigious and read publications.

The teachers of the programme carry out their research activities not only in the field of Civil Engineering (T 002), but also in the field of Materials Engineering (T 008). The main research in this field is related to the properties of hydrotechnical concrete, green concrete (concrete containing waste) and local building materials (pressed straw, hemp concrete).

The teachers (researchers) of the Faculty carry out research that is closely related to the EU and Lithuanian R&D priorities. The main research areas are: Physical and digital modelling of hydraulic and hydrological processes; Application of Nano and other technologies in water management and construction processes; Durability studies of hydraulic engineering and agricultural building structures and materials; Drainage and irrigation systems, change of water balance elements; 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) (the list of R&D projects carried out by the Faculty is presented in Annex 4). All these directions are closely related to the ongoing studies. At the beginning of each academic year, teachers adjust/update study course lecture notes,

laboratory/practical work, visual material, case studies and discussions to include new scientific knowledge, their research outcomes (for example: remote sensing of buildings, construction scanning and optical technology-based measurement systems; microhydroenergy technologies, nanomaterials, smart drainage technologies, etc.).

The researchers of the Faculty maintain relations with both Lithuanian and foreign science and studies and business partners. The main fields of cooperation are research (implementation of research projects, joint publications, organization of conferences and seminars) and studies (mobility of students and teachers). Here are some examples of successful cooperation in joint participation in projects of international programmes:

- Integrated intelligent sensor system for improved of water supply (ES FP7 programme), 2014-2017. **Partners:** University of Vienna, Tor Vergata University of 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 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 another 13 partners, including 5 from Africa and Latin America.
- Water emissions and their reduction in village communities-villages in 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 Centre, Estonian Ida-Virumaa Vocational Training Centre, Lithuanian Society of Engineering Graphics and Geometry.
- Education for Sustainable Water Bodies and Coasts (Nordplus Higher Education 2020 programme, 2020-2021. **Partners:** Latvian University of Life Sciences and Technology, Estonian University of Life Sciences, Westfjors University (Iceland).

Vytautas Magnus University's strategic action plan for 2021–2027 continues to provide for the development of R&D activities and the publication of research results in high-category scientific journals with a high citation index. Taking into account this, the researchers of the study field of the Faculty continue to develop their research activities and, together with partners, have submitted applications for funding of R&D activities:

- Lithuanian-Polish DAINA-2 programme administered by the Lithuanian Science Council (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;
- II call for the EU Funds Investment Operational Program Instrument Measure No.09.3.3-LMT-K-712 “The development of scientific competence of scientists, other researchers and students through practical scientific activities” activity “Promotion of internships after doctoral studies” administered by the Lithuanian Science Council for 2014–2020 (1 application);
- The Baltic research programmes, administered by the Lithuanian Research Council, funded by the European Economic Area (EEA) countries (Iceland and Liechtenstein) and the Norwegian Financial Mechanisms for 2014–2021. (2 applications for the Lithuanian call);

- Horizon 2020 programme (Green Deal). Application (2021):–Accelerating the green transition and energy access partnership with Africa: Hidden Renewable Energy for Africa;
- Environmental Protection Agency of the Republic of Lithuania. Application “Preparation 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”;
- LMT priority research programme “Welfare Society” application "Utilization of Natural Environment and Cultural Resources in Creating Welfare Society: Application of Biophilic Design Principles in Lithuanian Regions";
- Measure “Technical Assistance” of the Lithuanian Rural Development Program for 2014–2020. Field of activity "Lithuanian Rural Engineering Network";
- Lithuanian–Ukrainian Cooperation Programme in the Fields of Research and Technologies. Waste Management at the Rural Territories in Ukraine and Lithuania: Problems and Practice.

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

Research and experimental development and the dissemination of scientific knowledge are an important part of the study process, as they are the highest form of in-service training for teachers. Each teacher works in parallel from the studies and research work, and integrates the accumulated experience and scientific innovations into the courses EU Funds Investment Operational Program Instrument he/she teaches. The main scientific innovations that are integrated into the studies are related to the application of Nano and smart technologies, digital construction, sustainable construction, modelling of hydrological and hydraulic processes, improvement of drainage and irrigation methods, sustainable hydropower, flood risk management, climate change. Students are also introduced to the scientific innovations of the field when preparing their final theses. During the period under review, the main focus of teachers was on the latest scientific achievements related to Smart Specialization and the European Green Course. As an example, several students' final theses can be mentioned: “Identification of local floodplains in Šiauliai based on GIS methods” (2019), “Assessment of Vilnius city water network possibilities for electricity generation” (2020) “Use of stone tile waste in concrete production” (2020), “Research of influence of hemp shives on the physical and mechanical properties of concrete” (2018).

Demonstration research projects carried out by the teachers of the study field contribute to the integration of the latest scientific achievements into the study content (presentation of theoretical material through lectures, solution of practical tasks, analysis of problem situations, preparation of final theses on similar topics): Renewable energy sources, sustainable construction and smart barn application of the principles in agricultural production buildings”,“ Regulation of soil moisture regime”,“ Use of local building materials produced with low energy consumption in agricultural production buildings”,“ Smart regulated drainage system ”.

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

All second cycle students prepare final theses of a research nature, and the outcomes of the research are published in scientific or popular science journals and presented at conferences. Vytautas Magnus University Agriculture Academy annually organizes a student scientific conference "Young Scientist", which is widely attended by students in the field of civil engineering. In 2017, the students of the second cycle Hydraulic Engineering study programme read 17 reports at this conference, in 2018 - 16, in 2019 - 17, in 2020 - 20, in 2021 - 18 reports. Students also

actively participate in international scientific conferences both in Lithuania and abroad. During the period under review, students read reports and published articles at the following international scientific conferences: Research for Environment and Civil Engineering Development 17, Latvia; EUREKA 2020 - 8th colloquium and working session, Czech Republic; Air and Water Components of the Environment 2017, Romania; Sustainable Development: Regional Aspects 2017, Belarus; Rural Development 2017, Lithuania; Engineering and educational technologies, Lithuania; Forestry and Landscape Management, Lithuania.

During the activities of R&D projects, efforts are made to attract the most talented students to their implementation. In this way, students are interested in research and postgraduate studies. In the period of 2017–2020, eight students were attracted to R&D activities. They worked on the following R&D projects: “Assessment of the condition of drainage ditches using remote sensing methods”, “Application of controlled drainage with denitrification bioreactors for optimization of soil moisture and nutrient transport in drained lands”, “Use of fibrous hemp in the development of thermal insulation concrete for insulation of energy efficient buildings ”, "Regulation of soil moisture regime", "Study of creating suitable conditions for fish to migrate through obstacles", "Investigations of drainage systems siltation".

There were no recommendations from previous external evaluation experts in this area.

Please provide main results of the self-evaluation in the area of *Links between science and study activities*
Strengths
1. High-competence specialized groups of scientists have been formed, capable of solving modern scientific tasks according to priority fields of science, which is shown by the outcomes of comparative and annual evaluation of scientific activity. 2. The Faculty has a good modern infrastructure and organizational means for the development of scientific activities. 3. The studies are based on the results of ongoing research. Conditions have been created for students' involvement in research (through the preparation of final theses and their involvement in research project activities).
Areas for improvement*
1. Cooperation with businesses should be developed, which would help to commercialize new products developed by faculty researchers. It is planned to use specialists from the Vytautas Magnus University Communication and Technology Transfer Centre. 2. Researchers of the Faculty should be encouraged to cooperate more with other VMU divisions and other Lithuanian universities, which would allow the formation of new research directions and create conditions for participation in joint research projects. One such possible solution is to merge the engineering faculties of the AA into one, concentrating scientists in the field of technological sciences in one division.

3. STUDENT ADMISSION AND SUPPORT

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

The following are admitted to the programme studies:

- first cycle (bachelor) engineering sciences (study fields - environmental engineering, measurement engineering, civil engineering), technological sciences (study field - natural resource technologies), physical sciences (study fields - environmental science, natural geography), agricultural sciences (study field - fisheries) graduates;
- graduates of colleges or other study fields (not listed in the previous paragraph) who have completed additional studies in the field of civil engineering.

The competitive score of the applicants for the programme is calculated:

- for first cycle (bachelor) graduates: K = 0.8 A + 0.2 B, when: A - the weighted average of the grades of all courses in the bachelor's diploma supplement; B - bachelor's thesis evaluation;
- for graduates of colleges or universities of other study fields (not listed in the first paragraph): K = 0.4 A + 0.4 B + 0.2 C, when: A - weighted average of grades of study courses of college or university of other study fields; B - weighted average of grades of additional studies or related study courses; C - bachelor's thesis grade. In 2020 and in previous years, the formula - K = 0.8 A + 0.2 B was applied to this group, when: A - the weighted average of grades in college studies and additional study courses; B - bachelor's thesis evaluation.

Additional studies are organized at the Faculty for graduates of the first cycle (bachelor's) of other study fields or college (professional bachelor's) studies and wishing to study in the second cycle study programme of *Hydraulic Engineering*. The scope of additional studies varies from 30 to 60 ECTS, depending on the type of studies the student has completed. Upon completion of additional studies, an academic certificate is issued, which gives the right to enter the second cycle studies.

Admission conditions are published on the websites of VMU[24], VMU Agriculture Academy[25] and "*Lietuvos statyba*" (Lithuanian Construction)[26]. The study programme is also presented at the Study Fairs in Kaunas and Vilnius, and during visits to colleges. For foreigners, the study programme *Hydraulic Engineering* is presented on Educations.com[27], „Study in Lithuania"[28] and study fairs abroad (such as in India, Nigeria, Lebanon, etc.), in the conditions of a pandemic - by remotely presenting the programme at various events.

Bachelors of the VMU Hydraulic Engineering study programme mostly want to study in the programme, but there are also graduates of other institutions - from VGTU, KTU and various colleges (after completing additional studies).

Data on admission to the first year of the programme in 2017-2020 show (Table 3.1) that an average of 24 students are admitted to the programme. The decrease in the number of state-funded places in 2019-2020 was due to the redistribution of state-funded places within the University. On average, the number of those who have expressed a first wish to study in this study programme is about 70%, which indicates a high motivation of students. Assessing the number of wishes to study in the study programme, it can be stated that every year there is a competition to fill state-funded places. The biggest competition was in 2020 - the number of applicants who expressed a desire to study by first wish was 1.72 per place, and in total- 2.27 per place.

Table 3.1. Distribution of preference of applicants' wishes

Year	Number of wishes to study	Of which by the first priority	Number of admitted to state funded places	Number of admitted to non-state funded places	Falls on one admitted to state-funded studies	
					total wishes	first priority
2017	60	30	27	2	2,22	1,11
2018	47	37	32	3	1,47	1,16
2019	21	14	12	5	1,75	1,17
2020	25	19	11	4	2,27	1,72

Analysing the competitive scores of those admitted to study in the programme in 2017–2020, it can be seen that they (Table 3.2) remain stably high in state-funded places, which shows that these studies are chosen by motivated students.

[24] Access through the internet: https://www.vdu.lt/lt/visos-studijos-magistranturos-studijos/
[25] Access through the internet: https://zua.vdu.lt/fakultetai/vandens-ukio-ir-zemetvarkos-fakultetas/studiju-programos/
[26] Access through the internet: https://www.statyba.lt/imones/Vytauto-Did%C5%BEiojo-universitetas-Vandens-%C5%ABkio-ir-%C5%BEem%C4%97tvarkos-fakultetas/2384775
[27] Access through the internet: https://www.educations.com/study-abroad/vytautas-magnus-university/hydraulic-engineering-975804
[28] Access through the internet: https://studyin.lt/programs/hydraulic-engineering/

Table 3.2. The lowest, highest, and average admission scores of the students admitted to the study programme

Year	Admission scores to state funded places			Admission scores to non-state funded places		
	Highest	Lowest	Average	Highest	Lowest	Average
2017	8,530	6,190	7,386	6,592	-	6,592
2018	9,562	6,381	7,624	7,369	6,274	6,875
2019	9,000	6,910	7,907	6,800	6,010	6,404
2020	8,940	7,310	7,785	7,300	6,100	6,788

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[29]. 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.

[29] Access through the internet: https://www.vdu.lt/wp-content/uploads/2019/12/VDU-studij%C5%B3-rezultat%C5%B3-%C4%AFskaitymo-tvarka-1.pdf

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[30], VMU Description of Organization of Non-formal Adult Education[31]. 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.

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 (VMU Study regulations).

In the period of 2017–2020, there were 11 cases of crediting the outcomes of part-time studies abroad (in 2019), there were no cases of non-reading, as students going abroad for part-time studies coordinate their study plan with the Faculty administration. It would be unreadable only if there was a substantial difference between the learning outcomes 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 no such set-offs during the reporting period.

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 of 2017–2020, there was only one foreign student in full-time studies. The small number of students from abroad was determined by the difficulties in obtaining Lithuanian visas for foreign citizens from countries where the Faculty had experience in advertising their studies

[30] Access through the internet: https://www.vdu.lt/wp-content/uploads/2019/12/Description-of-Procedure-non-formal-ENG.pdf
[31] Access through the internet: https://www.vdu.lt/wp-content/uploads/2019/09/Neformaliojo-svietimo-organizavimo-tvarkos-aprasas-2019-002.pdf

(Nigeria, India). Meanwhile, 5 students came for part-time studies under the ERASMUS+ programme.

The number of students choosing mobility programmes during the period under review is relatively small. Only one student chose part-time studies abroad (2019-2020). Such a small number is due to the fact that a large part of students work in their free time and it is difficult for them to go to a foreign higher education institution for part-time studies for at least one semester. Students also participate in short-term mobility - in 2017, 2 students went to foreign higher education institutions for one-week courses.

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 and 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[32]; and the Description of Procedure for Compensation for Tuition Fees[33].

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

[32] Access through 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
[33] Access through the internet: https://www.vdu.lt/wp-content/uploads/2018/09/KK-tvarkos-apra%C5%A1as.pdf

is submitted to the Department of Student Affairs. No such requests were received during the period 2017-2020.

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.

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 (must be at least 8 scores).

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. Also, by encouraging students to study in the second cycle studies, the University applies discounts to non-entrants to state-funded places. In the period of 2017–2020, 50% discount for studies was granted in 2 cases (2019 –1, 2020–1), 100% discount - in 13 cases (2018–2, 2019–5, 2020–6).

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 to the students individually at the Dean's office, as the majority of those entering second cycle studies are already familiar with this information during first cycle studies.

Students can receive more information about the study programme at the VMU website https://www.vdu.lt/lt/study/programme/show/312/, Academy and Faculty websites. 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. Students use a specially designed portal https://studentas.vdu.lt/login.php?lang=EN where they can receive informational messages. The University has a centralized Student Centre to support

them by direct contacts or calling, emailing 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 counselling per semester. For that purpose, each teacher devotes 2 academic hours once a week to admitting students for consultations. The administration of the Dean's office of the Faculty did not receive any complaints, so it is likely that there is no problem with the consultation.

Expert recommendations provided during the last external evaluation related to *Student admission and support*			
1.	*Recommendation*	*Actions taken by the HEI*	*Comments*
1	3. With regard to student mobility opportunities, the expert group welcomes the existing Erasmus contracts. However, the number of students participating in these programmes remains small, and the Study Programme Committee should carefully analyse the possibilities for improving the situation.	In order to activate students to participate in the exchange programme, student meetings are held annually with the staff of the International Department and the Faculty administration responsible for international exchanges. Meetings of students wishing to go to foreign universities with those who have already studied abroad are also organized.	In the period of 2017-2020, 3 students participated using mobility programmes.
2	9. The student schedule should allow sufficient time for a lunch break.	All student flows are given a lunch break at different times in order to regulate student flows that can simultaneously feed at catering establishments located in the territory of VMU.	

Please provide main results of the self-evaluation in the area of *Student admission and support*
Strengths
1. The second cycle study programme is designed to prepare specialists for a well-developed labour market, which makes it attractive for those choosing a field of study and professional activity. Every year there is a competition for state-funded places for these studies. 2. 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). 3. Good academic and social support for students (depending on the real situation).
Areas for improvement*
1. Second cycle students do not choose long-term mobility programmes for objective reasons (entering the labour market during their studies). Second cycle students should therefore be encouraged to choose at least short-term (one-week) mobility programmes carried out on a contact or remote basis. 2. The international competitiveness of the programme remains a weakness of this study programme. It is necessary to strengthen the marketing of the programme among potential foreign entrants. A plan for the development of marketing in post-Soviet countries is currently being prepared. There is interest among foreigners who want to study, but everything is determined by economic subjects - a high tuition fee. In order to attract more students from these countries to second cycle studies, negotiations are underway with partner universities for a double diploma, as well as a discount system for the most talented foreign students. As an

example, a 100% discount on tuition fees was applied to a student from abroad in the Hydraulic Engineering programme in the 2020/2021 academic year.

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

The second cycle studies in the field of civil engineering are carried out in a full-time and part-time study form. The second 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' desire 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. The study method of intensive contact work influences the relationship between auditory and independent student work, the nature of real and virtual/remote communication between students and teachers. In the spring semester of the 2019/2020 academic year, after the quarantine was announced in Lithuania, studies, consultations, final theses defences, 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.

The methods of second cycle studies (teaching and studying) and assessment 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. Computer-aided design of hydraulic structures, Urban hydrology, Legal regulation of construction; Reliability of Building Structures, etc.); study methods used in *seminars* - analysis of problematic examples and questions, performance and summary of tasks, consulting, analysis of problematic cases, expression of competent opinion, discussion (e.g. Legal Regulation of Construction, Decision Support Systems in Water Engineering, Restoration of Damaged Aquatic Ecosystems, etc.); study methods used in *practical and laboratory works* - design and case analysis, interpretation of tasks, consulting, application of special computer software packages, studies and solution of problem tasks, etc. (e.g. Environmental Structures, Application of Building Information Modelling (BIM) in Hydraulic Engineering, Modelling of Water Supply and Wastewater Networks, etc.).

The most commonly used assessment methods in second cycle are written survey, discussion monitoring, observation of practical tasks, assessment of completed tasks, assessment of report/case analysis, assessment of problem analysis and decision making, discussion monitoring, monitoring and assessment of individual work presentation, decision assessment, participation in the discussion, expression of competent opinion, etc.

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 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. By performing independent work (additional studies of the submitted material), the student supplements and deepens the knowledge acquired during lectures, laboratory and practical work independently. The student acquires the ability to independently use teaching aids and apply modern information technologies, computer programmes, independently analyse the material, critically evaluate it, draw conclusions. In order to achieve the result, consistent work is encouraged and monitored by providing feedback during the semester.

Teaching/learning methods, that encourage the maximum learner to become involved in the learning process and become active participants in the study process, are flexibly applied in study programmes. The methods of assessment of learning achievements are chosen so that in all cases the student understands the objectivity of assessment. 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.

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[34]. 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 schedule 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[35]. The number of students in the programme belonging to socially vulnerable groups in the period of 2018-2020 was 1 person every year.

Following the needs of students with disabilities, the University's buildings and equipment are constantly maintained and updated, students are allowed to park their cars near the buildings, access to buildings is maintained; the necessary equipment is established for the disabled in libraries, classes are set with suitable furniture, students can settle in specially adapted dormitory rooms, if necessary, with an accompanying person. The study process is organized according to individual needs of students, individual counselling is provided when necessary, data on students with disabilities are integrated into database systems, thus facilitating the learning process for students with disabilities. Disability education campaigns are organized at the University.

The AA library has 3 workplaces, which are equipped with computer and software required for students with special needs: an image magnifier, which can be used to increase the readable text, adjust its brightness, contrast, letters and background colour; brightly coloured keyboards for the visually impaired; software: *EasyReader* - the programme translates plain text documents into alternative formats (Mp3, audio, Braille, digital book format DAISY); JAWS 14.0 *for Windows* is software that analyses information on the screen and passes it to a speech synthesizer that converts text to audio. *WinTalker Voice* 1.6 is a synthesizer in Lithuanian, which transmits the information on the computer screen to the reader by sound.

The buildings of VMU AA Campus are partially or 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 case of an unforeseen event with a person with special needs, a quick response is possible.

[34] Access through the internet: https://www.vdu.lt/wp-content/uploads/2015/01/VDU-individualaus-studiju-grafiko-teikimo-tvarkos-apra%C5%A1as.pdf
[35] Access through 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

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 the Procedure of Monitoring of Student Learning Achievements and Providing Assistance to Students[36]. 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 study course. Discussions of learning outcomes help students track study progress.

The University departments perform monitoring of learning achievements regularly. At the faculty level, the monitoring of student achievements and the provision of assistance are ensured by the Faculty, which is responsible for monitoring the enrolment of students in the Faculty, informing students for the purpose of preventing drop-out, organizing teacher consultations, coordinating the activities of students willing to volunteer to help other students with study difficulties, monitoring and analysing student achievement, improvement of study activities. A responsible person (vice-dean) has been appointed at the Faculty to perform these activities. 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 the event of a student falling behind on assessment plans, an individual assessment schedule is drawn up by mutual agreement, but these cases are exceptional, for justifiable reasons, such as illness or the like.

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 assessment of study achievements, using a ten-point scale. The cumulative assessment system motivates students to progress not only during the exam session, but consistently throughout the semester.

The procedure for surveys of VMU students, listeners, graduates and the quality of studies is established by Description of Procedure of Feedback for Improvement of Quality of Studies approved by the Rector of VMU in 2019[37]. 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. Student surveys are organized by faculties / institutes and carried out by staff (administrators) authorized by the deans of faculties and directors of institutes in order to ensure an effective system for monitoring study progress.

The average progress of full-time students is 8.13 points (Table 4.1). Slightly higher is observed in the second year. 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, more students with a

[36] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/11/DESCRIPTION-OF-THE-PROCEDURE-OF-MONITORING-OF-STUDENT-LEARNING-ACHIEVEMENTS-AND-PROVIDING-ASSISTANCE-TO-STUDENTS-AT-VYTAUTAS-MAGNUS-UNIVERSITY.pdf

[37] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/02/VMU-Procedure-for-Feedback-Organisation_Nov20-2019_edition.pdf

negative (<5 points) assessment are recorded in the first year (average 4.7 students) than in the second year (1.3 students).

Table 4.1. Average progress of students studying in the programme in the period 2017-2020

Course	Progress rate in points			Average number of students, in units	Average number of non-advanced students (assessment <5 points), in units*
	Autumn semester	Spring semester	Average		
Full-time studies					
I	7,99	8,14	8,06	15,7	4,7
II	8,19	8,21	8,20	11,7	1,3
Part-time studies					
I	7,63	7,23	7,43	18,5	4,8
II	8,16	8,09	8,13	17,5	4,5
III	7,86	7,50	7,68	16,3	2,5

**- students who failed the exam during the first time*

The average progress of part-time students is 7.75 points. Part-time students are involved in professional activities, therefore students who are negatively assessed (<5 points) during the first exam are recorded throughout all study years, but mostly also in the first year.

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

At the end of each semester, before and after the exam session, the analysis of student achievement monitoring is performed and its correlation with the teaching quality evaluation outcomes, which are recorded in the Faculty protocol within a separate study course, is checked. Students who did not participate in the mid-term examinations and received negative assessments 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. The responsible employee of the Faculty administration contacts the un-progressive students, finds out the reasons for their impaired progress and suggests and organizes solutions, such as additional teacher consultations, voluntary help of students studying together, etc. The results of monitoring are also used by teachers when planning measures to improve the course and increase student progress.

Examinations and midterm tests (except for practical courses of art area study programmes) are proceeded in written or online 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

Collaboration with VMU alumni takes place mainly through alumni clubs and individual departments of the University. Graduates periodically get newsletters with current information.

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 AA has their alumni club, whose main activities are: representation of VMU AA to students and members of agribusiness; promotion of partnership between VMU AA and alumni by establishing new regional and professional departments; participation in student events; assisting students in planning their careers and employment.

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.

Each year 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[38]. 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" provide data on the employment of graduates of analysed study programmes 12 months after graduation.

According to the survey of II cycle graduates (Table 4.2), it can be seen that all graduates find employment and work in highly qualified jobs 12 months after graduation. These data show that obtaining a master's degree increases employment opportunities in highly qualified positions.

Table 4.2. Data from the „Vocational Information Tool" of the Centre for Strategic Analysis of the Government (STRATA) on graduates employed in 2017 and 2018 by field of study 12 months after graduation

Year	**Worked in total**	Worked in highly skilled jobs
2017	**100% (20)**	100% (20)
2018	**100% (14)**	100% (14)

In August 2019, Vytautas Magnus University conducted a survey of 2018 graduates of the programme 12 months after graduation, but its responsibility was very low, only 5.65%, and is therefore not assessed.

In 2018 and 2019, the sociological research company "*Prime Consulting"*, commissioned by the magazine „Reitingai", interviewed employers in all regions (2192 and 2194, respectively) about graduates of individual higher education institutions and fields of study who completed programmes in the field of Civil Engineering. Employers were asked which higher education institutions and which fields of study alumni work in their companies, institutions and organizations, and they were also asked about the quality of university alumni readiness for work (not assessed separately by study cycles). Employers were able to single out one or two universities which graduates had the knowledge and skills that best satisfied them. Of the 2192 (2018) and 2194 (2019) employers surveyed, 16% (2018) and 14% (2019) of them were satisfied with the acquired knowledge and skills by VMU graduates who graduated from Civil Engineering.

[38] Access through the internet: http://karjera.vdu.lt/apie-mus/apklausu-rezultatai/

Information on the quality of preparation for the market by interviewing graduating students (EXIT) and 12 months after graduation is presented in Table 4.3. 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 = 17) and 2020 (N = 18). Twelve months after graduation, only 2 graduates participated in the survey in 2018 (the sample is too small and therefore not assessed), and in 2019, 9 graduates participated in the survey, who also rated the readiness for the labour market well.

Table 4.3. Data from the survey of students graduating in 2019 and 2020 (EXIT) and 12 months after graduation (in 2019) 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 - *don't know, hard to say*)

How do you assess VMU's contribution to your preparation for the labour market?	In 2019 (N =17) (EXIT)	In 2020 (N=18) (EXIT)	In 2019 (N=9) 12 months after graduation
I don't know, it's hard to say (%/number)	17,65% (3)	3,33% (6)	22,22% (2)
Bad (%/number)	0%	0%	11,11% (1)
More bad (%/number)	0%	0%	0%
More good (%/number)	35,29% (6)	22,22% (4)	11,11% (1)
Good (%/number)	47,06% (8)	44,44% (8)	55,56% (5)

Table 4.4. Survey data of graduating students (EXIT) in 2019 and 2020 and 12 months after graduation in 2019 on what was most useful in preparing for the labour market

What was the most useful in preparation for professional activity (per cent/number)	In 2019 (N=17) EXIT	In 2020 (N=18) EXIT	In 2019 (N=9) 12 months after graduation
Knowledge and skills acquired during study sessions (lectures, seminars, laboratories, etc.)	82,35% (14)	72,22% (13)	55,56% (5)
Knowledge and skills acquired during independent tasks	47,06% (8)	44,44% (8)	55,56% (5)
Knowledge and skills acquired during study practice	29,41% (5)	16,17% (3)	33,33% (3)
Teacher assistance	35,29% (6)	22,22% (4)	55,56% (5)

The survey of graduates revealed that the professional activities of most graduates of the programme correspond to the acquired specialty, or a close engineering specialty.

Every year, the administration of the Faculty of Water and Land Management receives over 10 job offers for the Faculty's graduates. 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 [39], the Code of Ethics of VMU [40], the Plagiarism prevention procedures of VMU[41], 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 inform about this the Dean of the Faculty/Academy Chancellor and the Department of Studies in written form. The final evaluation

[39] Access through the internet: https://www.vdu.lt/wp-content/uploads/2020/11/VMU-STATUTE-EN-2018.pdf
[40] Access through the internet: https://www.vdu.lt/wp-content/uploads/2012/04/The-code-of-ethics-of-VMU.pdf
[41] Access through the internet: https://www.vdu.lt/wp-content/uploads/2012/04/Plagiarism-prevention-VMU.pdf

"0" (zero) is written in the learning outcome record book. The faculty dean or Chancellor of the academy starts the investigation regarding students' unfair behaviour.

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 study 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 [42], 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 should have arguments when submitting their appeals. The appeal commission is assigned, and it analyses the information related to the appeal as well as makes the decision within 5 days of the appeal receipt.

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

There were no recommendations from previous external evaluation experts 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. 2. The variety of study and assessment methods provides an opportunity to objectively and comprehensively assess students' knowledge and skills acquired in the study process. 3. The employment of the graduates of the study programme is high: graduates of the second cycle studies are 100% employed. Employers respond positively to the preparation of graduates for professional activities. 4. There are very strong connections between the teachers of the programme and companies, members of the AA *Alumni* Club, and their interest in the quality of studies and support for them is felt. According to the survey data, employers and graduates rate the quality of knowledge and skills acquired during the assessment period as good. Strong links with companies provide students in the programmes being evaluated with the opportunity to conduct research or gather information for preparation for coursework or final theses, and often guarantee jobs for graduates.
Areas for improvement*
1. To encourage teachers and expand the use of distance learning methods and tools in the process of study programme implementation. Actions: to continuously improve study and assessment methods, including inclusive forms of teaching, based on the results of surveys and feedback; to improve the system of teacher promotion and motivation in order to increase the quality of teaching.

[42] Access through the internet: https://www.vdu.lt/wp-content/uploads/2021/05/REGULATIONS-FOR-SUBMISSION-OF-APPEALS-2021-03-24.pdf

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 study programme is implemented by the Institutes of Hydraulic Engineering and Water Resources Engineering. The programme currently employs 4 professors, 8 associate professors, 2 lecturers, one of them a doctor (Annex 3). Most of the teachers carry out research in the field of Civil Engineering, which is related to the subjects taught.

The structure of teachers' pedagogical, scientific, methodological and organizational working time is planned for the academic year. The scope of work is differentiated according to position. The average annual workload in the 2017-2020 academic year was: professors - 654 contact hours, associate professors - 703 hours, lecturers - 725 hours. From the 2019/2020 academic year, the procedure for calculating the workload of VMU teachers has been simplified by assessing only contact hours and the workload of individual positions: professors - 450 contact hours, associate professors - 500 hours, lecturers, 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. Teachers provide information on the results of their work in annual activity reports, which are monitored by the Department of Science and Innovation. The results are discussed with the directors of the institutes. The University has developed a system of financial incentives for teachers through salary supplements, the amount of which depends on the results achieved. Scientific activities, in particular the publication of high-level articles, are most encouraged.

In the 2020-2021 academic year, the Faculty has 25.35 teachers and researchers positions (16.85 teachers and 8.5 researchers). These positions are filled by 36 teachers and researchers. 7.9 full-time teachers work and conduct research in the field of Civil Engineering. In the study year 2020-2021, the teachers of the field have 3.4 full-time positions. These positions are occupied by 15 teachers. During the evaluated period, the average number of students per teaching position during the study year was 16.6, which does not exceed the maximum value provided for the field of study (20 students per teacher). 87% of teachers of the field working at least 0.5 full-time positions (13 out of 15); the share of teachers working for at least 3 years from all teachers of the field - 100%; all teachers have practical experience, currently the average practical work experience of the teachers working in the programme is 9.5 years. Usually, this experience is acquired on the basis of individual activity certificates during project and expert activities.

The change of teachers of the study programme during the last year is insignificant. One teacher went to another job, another teacher ended his teaching career in 2020. The substitutability of outgoing teachers is solved by simultaneously assigning the subject they teach to a junior teacher who takes over the teaching of the subject.

The length of service of teachers at the university is from 5 to 40 years. There should be more younger teachers, but with the declining number of staff in recent years, it is difficult for young people to find a place among teachers.

Compliance of staff qualification requirements is given in Tables 5.1-5.2.

Table 5.1. Compliance of the field staff with the requirements for the second cycle studies

Criteria	Requirements	In the programme
At least a master's (or equivalent) degree:	Not less than 100%	100%
Master's degree (or equivalent) in Civil Engineering	Not less than 50%	100%
Taught by scientists with dr. degree Of these, scientific activities correspond to the	Not less than 80% Not less than 60%	92,4% 86%

courses taught		
Taught by professors	Not less than 20%	22,5%
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. 53.1-53.2,53.4 p., 56 p.[49]		

Table 5.2. Distribution of pedagogical workload of teachers of individual positions in the second cycle Hydraulic Engineering programme

Study year	Without dr. degree (must be <20%)	With dr. degree (must be ≥80%)	Professors (must be ≥20%)
2017-2018	8,46	91,54	20,48
2018-2019	7,76	92,24	20,63
2019-2020	7,64	92,36	23,69
2020-2021	4,60	95,40	32,64
Average	**7,63**	**92,37**	**22,49**

The staff working in the programme meets the requirements for master's studies. The share of pedagogical workload of professors has significantly increased during this study year. It is likely that there will be more professors working in the programme in the future, as there are associate professors who are actively engaged in research.

The scientific competence accumulated by the teachers allows for successful participation in expert activities. The 4 teachers working in the programme are members of the following institutions, councils, associations: Lithuanian Academy of Sciences, Water Problems Council of the Lithuanian Academy of Sciences, UNESCO IHP - International hydrology programme, IAHS - International Association of Hydrological Sciences (United Kingdom), NAH - Nordic Association for Hydrology (Norway), NJF LT Board of the Lithuanian National Society, Board of the Environmental Protection Association. One teacher is an expert of the Lithuanian Business Support Agency's research projects "Experiment", 4 teachers are experts of the Lithuanian Standardization Department.

2 teachers are included in the editorial boards of high-level scientific journals and scientific conferences: „Journal of Water Security“, „Environmental Research, Engineering and Management“. Teachers are members of the scientific committees of the international scientific conferences (The XXXI NordicHydrological Conference "Hydrology and water - related ecosystem services"; "Safety and Durability of Structures"; Rural Development "People, buildings and the environment 2018" - Brno, Czech Republic; The 9th international scientific- technical conference on Environmental Engineering, Photogrammetry, Geoinformatics Modern Technologies and Development Perspectives; International Scientific Conference on Ecological and Environmental Engineering). 3 teachers are members of the organizing committee of the international scientific conference “Rural Development” and the student scientific conference “Young Scientist”. Among the teachers of the programme are the editor and a member of the editorial board of professional magazine "Land Management and Hydroengineering" of the Lithuanian Association of Land and Water Management Engineers (LŽHIS).

Teachers are invited to other universities, colleges preparing civil engineering specialists, as chairmen of the final thesis defence commissions (VGTU Masters of Geotechnical Engineering, KTU Masters of Civil Engineering) and as members of the final thesis defence commissions (Bachelors of Kaunas Forestry and Environmental Engineering University of Applied Sciences (KMAIK) Hydraulic engineering profession, University of Applied Engineering Sciences (KTK) Bachelor of Civil Engineering profession).

7 teachers of the programme are members of public councils of Lithuanian ministries, 2 teachers are members of the commission “Certification of Enterprises and Specialists for Expertise

of Reclamation Structures and Reclamation Structures Projects", formed by the order of the Minister of Agriculture of the Republic of Lithuania.

Teachers and researchers represent the University in the Lithuanian Union of Scientists, all teachers are members of the Lithuanian professional Association of Land and Water Management Engineers (LŽHIS), among the teachers of the programme is the president of this association, a member of the management and work committees of the organization representing Lithuanian engineers, an expert of the Lithuanian Responsible Business Association, a member of the breakthrough group "Regulation of soil moisture regime by smart land reclamation".

Teachers participate in the preparation of Lithuanian construction normative documents for the design of hydraulic structures and construction works. The following has been prepared: Seaports Technical Regulation "Design of Seaports and Shipping Structures"[43], Annex 17 of the Construction Technical Regulation STR 1.04.04: 2017 "Building Design, Design, Expertise" "Description of the Procedure for Preparation of Water (Sea) Port and Shipping Structure Design"[44].

Construction rules prepared by order of the Lithuanian Association of Land Reclamation Companies (LMĮA): ST 120793378.01:2019 "General construction works", p. 303; ST 120793378.01:2020 "Hydraulic engineering works", p. 241; ST 120793378.02:2020 "Bridges, viaducts, overpasses, shallow tunnels, retaining walls, cableways", p. 124; ST 120793378.06:2020 "Water supply and sewerage of buildings. Outdoor water supply and sewerage. Water treatment and wastewater treatment facilities", 70 p.

Most of the teachers read reports in LŽHIS refresher courses for the managers of the main areas of construction technical activity. One teacher is the chairman of the professional knowledge assessment commission of the managers of the main areas of construction technical activity of LŽHIS, two are the members of the commission.

High practical qualification is indicated by the fact that 5 teachers of the programme are certified as managers of special hydraulic structures, including land reclamation and other engineering structures and their project expertise, as well as project managers and project implementation supervision managers and have prepared hydraulic engineering, land reclamation, other engineering structure projects, performed construction and building project expertise. All Faculty teachers of the programme speak one or more foreign languages at a minimum level of B2.

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). Before the pandemic 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. Before the pandemic about 180 VMU staff members participate in staff mobility for training in a year.

Favourable conditions are created for the mobility to universities in other countries. Before the pandemic, in 2017-2019, there was a large number of academic exchanges of teachers working in the programme (55 visits). 19 times teachers went to give lectures, 16 times for internships, courses, 20 trips related to participation in international programmes (Table 5.3). The four most active teachers have visited other countries 5-8 times during the reporting period, other teachers have limited to 1-3 visits. It is useful for raising qualifications, establishing contacts (cooperation). This takes over good practice and improves the teaching of study courses: 70% of teachers

[43] Access through the internet: https://www.e-tar.lt/portal/lt/legalAct/b6ba38f077f211eabee4a336e7e6fdab
[44] Access through the internet: https://www.esavadai.lt/dokumentai/6990-vandens-juru-uosto-ir-laivininkystes-statinio-projekto-rengimo-tvarkos-aprasas-17-priedas-galioja-nuo-2018-07-13/

supplement the lecture material with examples from other countries, 7% - apply new teaching methods: case analysis, analysis of problem examples, demonstration, expert method, active discussions or various game models. In this way, students better master the courses taught.

In 2017-2020, 20 teachers and researches from abroad, mostly from Poland, came to the Faculty for lectures and internships (Table 5.3). Lectures given by foreign teachers were attended by teachers and students of the field. For example, in 2018, Jana Pařílková and Jaroslav Veselý, PhDs from Brno University of Technology, and B.Giunsburgs, Professor from Riga Technical University, visited the University under the Erasmus programme. They gave lectures to second cycle students on the issues of physical and digital modelling of hydraulic structures and wastewater treatment plants.

Table 5.3. Mobility of *Erasmus* + study programme teachers

Study year	2017-2018	2018-2019	2019-2020
Teaching and learning visits to partner countries	19	22	14
The most popular countries: Poland, Bulgaria, Czech Republic, Latvia, Finland.			
Teaching and learning visits from partner countries	7	9	4
The most popular countries: Poland.			

We do not currently have examples of virtual mobility, but the protracted pandemic encourages 'remote' mobility. Competitive funding of the University47 and LMT48 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.

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, subject-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. 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. All teaching staff of the field courses had the professional development possibilities outside the University regarding their teaching and research interests during three years. If other institution-provided possibilities are cost-related, the University teachers can apply for support from their department, research clusters, Erasmus+ programme possibilities or use other potential opportunities.

In developing the didactic skills of the University teachers, in recent years a great deal of attention has been paid to the training of teachers on more active involvement of students in studies, teaching and distance learning, providing feedback to students, as well as other relevant trainings.

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?”. The trainings were organized several times a year, using the University's internal resources, i.e. the University teachers were invited to conduct the trainings, 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 trainings conducted by Vytautas Magnus University Institute of Innovative Studies on the organization of distance learning, cooperation and assessment 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 them.

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.

There have been three teachers on long-term internships in the last three years (66 days and 21 days in Poland, 16 days in Australia). Other teachers participated in the short-term internships, professional development courses, seminars both in Lithuania and abroad. In 2020, due to quarantine, refresher courses are usually held remotely.

The results of trips to foreign universities are the preparation of applications for international research projects, joint publications, and the transfer of advanced experience in the fields of studies and science.

The development of teachers in the *Erasmus+* mobility programme is summarized in Table 18. Teachers actively travel for project activities. A lot of knowledge experience in the teaching of special study courses, as well as in research, scientific, didactic or professional activities is provided by seminars initiated by teachers and participation in distance learning.

Expert recommendations provided during the last external evaluation related to *Teaching staff*			
1.	*Recommendation*	*Actions taken by the HEI*	*Comments*
1.	4. International teacher mobility rates are low. Accordingly, more attention should be paid to support and promotion measures to ensure staff participation in *Erasmus+* and other exchange programmes.	In 2017-2019, there was a large number of academic exchanges (55 visits) of the teachers working in the programme, using various sources of funding (university, faculty and external). 19 times teachers went to give lectures, 16 times for internships, courses, 20 trips related to participation in international programmes related to studies or science. The international mobility of teachers is evaluated during the teachers' evaluation. During the 5-year external evaluation period, teachers must participate in at least one business trip. The overall assessment during the external evaluation depends on the international mobility of the teacher. Such evaluation system encourages teachers to become more involved in mobility.	
2.	8. It is recommended to organize staff training in order to improve their foreign language skills.	In the 2017/2018 and 2018/2019 academic years, partially paid foreign language courses were organized, and from the 2019/2020 academic year, VMU teachers can attend free foreign language study courses. In recent years, three teachers have taken advantage of this.	

Please provide main results of the self-evaluation in the area of *Teaching staff*
Strengths
1. The high scientific, didactic and professional competence of the teachers working in the programme is fully suitable for achieving the study results.

2. The high mobility of teachers in the ERASMUS+ programme meets the requirements.
3. The conditions for improving the competencies of teachers by participating in the implementation of national and international research projects are good. In addition, the University has good conditions for the development of teachers' didactic skills.

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, it is difficult for young teachers to find employment in the programme. This creates preconditions for an increase in the average age of a teacher. **Improvement:** Doctoral studies and the involvement of doctoral students in project activities that motivate young researchers to stay in the University and have part-time pedagogical employment must be intensified.

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

Vytautas Magnus University provides sufficient material resources that are directly focused on ensuring the quality of studies in order to create the most favourable study conditions for students and teachers, which guarantees opportunities for effective studies[45]. 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.

Auditoriums and laboratories

The University has 222 auditoriums, which are used for study purposes as needed. The size of the rooms varies from 5 to 150 workplaces, and for even larger groups of students, lectures can take place in the Great Hall, which has as many as 725 seats.

Hydraulic engineering studies are mainly carried out in the 3rd building of the AA, where the Faculty has 12 general auditoriums from 16 to 52 workplaces for lectures and seminars and equipped with modern equipment. If there is a need to combine flows (joint lectures (courses Investment Project Management, Spatial Data Analysis) with Land Use Planning study programme students) there is an opportunity to use larger auditoriums.

Practical works can be done in three computer classes, two of which are specialized - Geographic information systems with 22 workplaces, Geomatics with 15 workplaces, and with general applications - 15 workplaces. In the autumn semester of this academic year, an opportunity was created for students to connect to computers in computer classes remotely by reserving free time in advance. Auditoriums for teachers are provided taking into account the size of the group of students and the number of workplaces in the class, and thus the optimal size of the premises for the provision of study courses is selected. Usually, the schedule of theoretical lectures, seminars, and discussions is planned so that students spend the entire day in the same class. This way, they feel more comfortable, settle in all day, plug in their computers, and don't have to worry about leftovers after breaks.

Although second cycle students no longer do basic laboratory work, they have access to 7 specialized laboratories (usually for first cycle students) where they can carry out individual tests for research work. Laboratories of Building Materials and Geotechnics, Hydraulics and Hydraulic Structures are especially popular among second cycle students.

In addition to teaching laboratories, all opportunities are created to work together with teachers and researchers in the three scientific laboratories operating in the Faculty – Laboratory of Geomatics, Laboratory of Structures and Building Materials and Laboratory of Aquatic

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

Ecosystems. All these laboratories are equipped with modern research equipment. The Laboratory of Structures and Building Materials is especially popular and this is not surprising as it is most closely related to the study programme. The results of the research presented in the final theses of more than a third of the students are based on the tests performed in this laboratory.

Most of these auditoriums and laboratories are equipped with specialized visual aids and equipment. As the number of students declines, the relative number of workplaces is very high. This shows that the provision of study premises is more than sufficient, although students of other study programmes also use the workplaces.

The premises for studies meet the requirements of labour and hygiene standards. Over the past five years, all of the above-mentioned auditoriums and laboratories have been renovated and adapted for students with special needs.

All Vytautas Magnus University buildings are adapted for the study of the disabled: elevators, special wheelchair lifts for the disabled with reduced mobility are installed. Students with disabilities have access to parking near the University buildings; the entrance to the buildings is constantly maintained and updated; the equipment in the libraries is intended for the disabled by creating special workplaces for them, in the auditoriums - furniture that meets their needs; disabled people have the opportunity to stay in dormitory rooms adapted only 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 entire study process for students with disabilities.

Specialized software

All students have access to specialized programmes purchased from general university funds. It is software used by students in various programmes, and by teachers from various faculties. Licenses for such programmes are fully sufficient. Educational versions of the programmes are also used for specialized studies (Table 6.1). The Faculty has acquired only one license for some programmes (PLAFI, *Geoslope*), but they are highly specialized and used for research or dissertations, so a larger number of licenses is not needed yet. After assessing the need, efforts are being made to find financial resources to increase the number of licenses. In 2021, it is planned to acquire more *MikeUrban* programme licenses on this principle.

Table 6.1. Software used for programme studies

Software available on VMU intranet and libraries		
Softwre	Purpose	Library
PSS IBM *Statistics* 22	Qualitative data analysis programme	Vaclovas Biržiška Library Leonidas Donskis Library Mykolas Romeris Library
NVivo 10 *for Windows*	Qualitative data analysis programme	Vaclovas Biržiška Library Leonidas Donskis Library
Statistica 10	Qualitative data analysis programme	AA library
ArcGIS Desktop 10.8	Programme for mapping and spatial analysis	AA library
ArcGIS Pro 2.6.3	Programme for mapping and spatial analysis	AA library
Specialized software		
HEC-RAS	1D and 2D Hydrodynamic modelling	Freely available online
HEC-HMS	Hydrological modelling	Freely available online
HYPSE, *Promethee*, DAM	Decision support systems	Freely available online
HEC-*ResSIM*	Assessment of hydropower potential	Freely available online
MikeUrban	Modelling of water supply and sewage networks	1 license was purchased by the Faculty

EpaNet	Water supply modelling	Freely available online
SWMM (*Storm Water Management Model*)	Modelling of sewage networks	Freely available online
PLAFI	2D Hydrodynamic modelling	1 license was purchased by the Faculty
Geoslope	Seepage modelling	1 license was purchased by the Faculty
AutoCAD	Graphical automated design system	There are educational versions
Civil 3D	Design of civil and environmental engineering objects	There are educational versions

Virtual study environment

A virtual learning environment and collaboration system *Moodle* is created for students and teachers. It allows teachers to choose different forms of organization of study courses, to organize practical activities in various ways, to share study tools. Implemented all the features necessary for teamwork in *Moodle*: communication within the organization, 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, *www* sites. In the spring of 2020, the pandemic called for an urgent transition to distance learning. *Adobe Connect* and *BigBlueButton* video conferencing tools, which are conveniently integrated into the *Moodle* environment, have been introduced for distance learning. *MsOffice* 365 T*eams* is becoming increasingly popular for organizing other remote activities. Because these tools are different, it was not easy for all teachers to adapt. There have been teachers using *ZOOM* or *Google HangOut* and *AnyDesk* tools.

Important VMU IT tools for presenting study information are the Student Portal and the Teachers' Portal. The main principles of the Student Portal: centralized ("one-stop-shop") 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. Teachers' Portal - analogous to the Students' Portal, the main functions of which include monitoring of registration in study courses, electronic journals, review of teaching quality assessment; the system operates in bilingual mode.

Library

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[46] has been created in faculties and academies (5510 m^2 in total) 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[47].

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

[46] Access through the internet: https://biblioteka.vdu.lt/en/about/structure/departments/
[47] Access through the internet: https://biblioteka.vdu.lt/en/for-studies/facilities-and-study-spaces/booking-a-workspace/

XD 24, keyboards for the visually impaired, alternative computer mice, height-adjustable tables, ergonomic chairs.

One of the most important tasks of the Library is to accumulate document collections and organize access to traditional and electronic information resources. The Library Fund accumulated 1.1 million traditional (printed) documents in 2020. 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-digitalised 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[48], VMU Research Management System (CRIS[49]) and VMU virtual library[50]. Information resources for course studies can be found in the Study Course Literature Catalog.

The University community has access to almost 676 thousand electronic resources (410 thousand e-books, 38 thousand e-journals, 228 thousand conference presentations, audio recordings, other documents), 61 databases. The latter ones can be accessed on the University premises and from remote computers (via EZproxy). In the guide by subjects (SubjectPlus), users have the opportunity to find systematic links to thematic information contained in the University's licensed or open access academic resources according to the study courses.

The aim of the Library is to create user-friendly conditions for access to information resources. The most necessary printed documents (almost 300 thousand publications in open funds) are freely available to users and stored according to research fields, the search for publications 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, 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 research and study production and activities of the University. The system has accumulated over 65 thousand publications, almost 19 thousand records of final theses (ETD), almost 30 thousand el. documents: books, magazine articles, ETD and other documents, over 10 thousand external links to full-text documents. VMU CRIS repository contains 41 titles of the University's electronic scientific journals.

The information resources of the library for studies in the field of Civil Engineering are fully sufficient (Table 6.2). Printed documents in the field of Civil Engineering are stored in the AA library, a smaller number of publications on this topic are kept in other departments of the library. The traditional library of the students of the study programme is the library of the AA.

Table 6.2. Information resources for studies in the field of Civil Engineering.

Main information	Traditional documents	Electronic resources
The fund has a total (pcs.)	1.1 million (of which 378 thousand in the library of AA)	676 thousand, 61 licensed DB, Works published by the University and researchers in the VMU Science Management System (VMU CRIS), VMU Virtual Library VMU virtual library
Resources for Civil Engineering field studies (pcs.)	~ 14100 (of which in the library of AA ~ 13500)	5278 (660 e-journals, 4 497 e-books, 121 ETD works)
Documents in open funds	293550 (of which 54	Access to electronic resources in VMU

[48] Access through the internet: https://biblioteka.vdu.lt/en/databases
[49] Access through the internet: https://biblioteka.vdu.lt/en/for-research/vmu-scientific-production/
[50] Access through the internet: https://vb.vdu.lt/primo-explore/search?vid=VDU&lang=en_US (in EN).

(pcs.)	185 in the library of AA)	computer network and from remote computers around the clock
Total use of documents	Use of documents in total 241648 (of which in the library of AA 51 187)	4050675 searches 1419880 full text document downloads
Information resources acquired by the library (2019) Eur, for:	152027,33	529786,11 (university and project funds)
Expenses for studies in the field of Civil Engineering 2019, Eur	700,00	4 380,00

VMU licensed databases recommended for studies in the field of Civil 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.

Evaluation tools of scientific results: 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.

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

Every year, VMU upgrades computers and purchases multimedia 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 classes 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.

The planning of the resources required for the study field takes place at the level of institutes, later the plan is summarized in the Dean's office and submitted to the VMU Finance department. The plan for the need for funds for 2021 is presented in Table 6.3.

Table 6.3. Summary of resources required for the field of study.

Area of planned funding	Amount Eur.
Repair works	5000
Scientific equipment	4500
Computers and their repair	6500
Software licenses	8000
For general university needs (laboratory materials, work safety equipment, work tools, etc.)	3500

Acquisition of smaller assets is carried out at the expense of the institutes, and in case of overlapping interests of several institutes, financing is also possible with the funds of the Faculty.

Researchers of the Faculty always participate in LMT, ministry or government-sponsored or EU-funded programmes and prepare competitive applications. From the performed commissioned research and applied works, 8 percent of the received income is allocated for the development of the study and research base of the Faculty and institutes.

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 (subject 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 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. The University community can order publications from Lithuanian and foreign libraries that are not available at VMU Library. This can be done through the Interlibrary Loan (ILL) system by completing an interactive TBA order form.

Expert recommendations provided during the last external evaluation related to *Learning facilities and resources*			
	Recommendation	*Actions taken by the HEI*	*Comments*
1.	6. Aleksandras Stulginskis University has well-equipped laboratories, as well as a practical training field base. It is recommended to take all necessary measures to ensure their functioning, as well as to make greater use of them in students' practical tasks.	Specialized laboratories are used in the study process as efficiently as possible, taking into account their need provided for in the study programme plan and the intended study outcomes of the programme. The field Laboratory of hydraulic structures is minimally repaired, most of the equipment is open during the summer, but this field laboratory is more intended for first-cycle students - for visual demonstration but not for research or testing.	It is planned to focus the research of the second-cycle students more on the base of the already existing scientific laboratories. Every year, a plan for the purchase of new equipment is prepared and submitted to the VMU Financial Service. E.g., in 2021, part of the planned software has already been purchased.
2.	10. Health and	In order to improve health and safety conditions in	These actions are

	safety conditions in laboratories and in the practical training field base should be improved.	the laboratories and in the practical training field base, various protective equipment was purchased: work gowns, disinfectants, gloves, boots, raincoats, life jackets. Labour safety instructions are made public in the laboratories of the Third Building of VMU. Properly installed mechanical testing machines in Strength of materials laboratory, which at the time of accreditation stood out of place and were not fixed. Mechanical testing machines in the Strength of materials laboratory are properly secured, which at the time of accreditation stood out of place and were not secured. The provision of microclimate (heating and ventilation) in all laboratories is controlled, and the recuperation system is constantly checked for proper operation.	performed annually.

Please provide main results of the self-evaluation in the area of *Learning facilities and resources*
Strengths
1. VMU AA Faculty of Water and Land Management infrastructure, premises, auditoriums, computer equipment, and internet connection are properly adapted for the implementation of the study programme. 2. In the Master's studies, students use the equipment and tools of scientific laboratories that meet the modern requirements of research and methodologies. 3. Excellent conditions for working in libraries and using its diverse resources.
Areas for improvement
1. Because specialized software is relatively expensive and the availability of multiple licenses remains limited, there are plans to encourage the use of open source software. A good example is HEC-HMS, HEC-RAS. QGIS, open source GIS software and other similar applications, should continue to be used. 2. As the acquired scientific and training equipment is constantly worn out, it is necessary to perform a detailed audit of the existing equipment, assess its condition and prepare a financial plan for its renewal or purchase of new equipment.

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 SPC of programme is composed of 8 members: 6 teachers, 1 social partners and 1 students. 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, subject-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' representative participates in the revision of the Programme learning outcomes in line with labour market needs and give recommendations for renewal.
- The student representative gives 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 defense 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 (2020, 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 in Lithuanian[51] and English[52].

[51] Access through the internet: https://www.vdu.lt/lt/apie-vdu-kaune/svarbiausi-vdu-dokumentai/senato-dokumentai/
[52] Access through the internet: https://www.vdu.lt/en/about-vmu/important-documents/

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 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.

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 the Head of the Department 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.

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 subject-specific recommendations lead to improvement.

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.

The results of the survey are also presented to the Chairman of the Committee and the main trends in the evaluation of teaching are discussed at the meetings of the Committee, decisions are made on what actions should be taken to improve the quality of teaching.

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 Head of the Department, 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

40% of the programme's graduates participated in the 2020 "EXIT2020" survey. The students of the programme evaluated the possibility of international mobility provided by the University with 4 points (four-point scale, when 4 - the highest evaluation), the evaluation of the study sessions with their study expectations was the weakest - with 3.5 points (Table 7.1).

Table 7.1. Evaluation of graduate studies in 2020.

Evaluation criteria	Point
The University provided an opportunity for international mobility	4.00
If necessary, I was able to consult with the teachers	3.88
The administrative staff provided the necessary assistance	3.88
The equipment of the auditoriums, laboratories and other study premises was adequate	3.88
Study material and literature sources were available in the library and/or in a virtual environment	3.88
The content of the study courses corresponded to the aim of the study programme	3.75
The study workload was right for me	3.63
Lectures, seminars, laboratory work and other study sessions met my study expectations	3.50

When evaluating the preparation of the final thesis, 75% of the respondents rated the cooperation with the thesis supervisor as “smooth”, 25% - “More smooth than not smooth”. 60% of respondents said that "the supervisor made enough effort to make the collaboration smooth" and 40% said that "the graduates themselves made enough effort to make the collaboration smooth". The students evaluated the usefulness of the preparation and defence of the final thesis in terms of which abilities they developed the most: 4 points each for “deepening the abilities in their field” and “developed independence abilities”, 3.63 points - “improved creativity abilities”, at least 3.5 points "Improved analytical thinking skills" and "deepened oral presentation skills". 87.5% of the respondents indicated that “the final thesis defence procedure was conducted correctly”, 12.5% - “More correctly than incorrectly”.

To the question “what was most useful in preparation for professional activity”, 46.15% assessed “Knowledge and skills acquired during lectures, seminars, laboratory work and other study sessions”, 15.38% - “Knowledge and skills acquired during independent tasks”. When asked how they evaluate the quality of the studied programme, the graduates rated 3.88 points “In summary, the quality of the study programme is appropriate” and 3.63 points “I would recommend others to study in this study programme”.

Students graduating from the programme of the analyzed study field evaluate many of the analyzed issues favourably.

Expert recommendations provided during the last external evaluation related to *Study quality management and publicity*			
	Recommendation	*Actions taken by the HEI*	*Comments*
1	Expert group noted that informally students and social partners are involved in the study programme management process, but that their participation should be formalized.	The delegated representatives of students in the Dean's office and Council of the Faculty and in the Rectorate and Senate of the University directly express remarks related to the quality of studies, organization of the study process and other issues related to studies. The Student Representation of the Faculty delegate student representatives to the Study Programme Committees, therefore their more active participation in the work of the Study Programme Committee is expected. Social partners, such as the Lithuanian Association of Land Reclamation Enterprises, the Lithuanian Association of Land Management and Hydraulic Engineers, AA *Alumni* regional branches, etc., often address issues related to the implementation of the study programme, attracting prospective students to study in the study programme and other issues at their meetings. This is formally reflected in the minutes of the meetings and other documents.	

Please provide main results of the self-evaluation in the area of *Study quality management and publicity*
Strengths
1. The management of the study programme takes place in accordance with the established regulated procedure, which provides for the responsibility of each programme participant - the Academy Council, Chancellor of the Academy, the Faculty Council, the Programme Committee, Dean of the Faculty and Head of the Department. 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 programme, which can effectively and timely influence the management and publicity of study quality. 4. The internal quality assurance system of the study programme 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. Improving the content of surveys for feedback assessment. Improvement: In the future provide for additional qualitative surveys in the direction of the discussion format. This will allow a deeper analysis of the problems that arise. 2. To 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 and aspects to be improved. Actions: keep in touch with alumni, employers, social partners, organize meetings-discussions, emphasizing the importance of such surveys