



CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD of ENVIRONMENTAL ENGINEERING

at VYTAUTAS MAGNUS UNIVERSITY

Expert panel:

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4. Prof dr. Dalia Štreimikienė, *representative of social partners*;
5. *Tadas Paukštys, students' representative.*

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Study Field Data*

Title of the study programme	<i>Water and Land Engineering</i>	<i>Land Use Planning*</i>	<i>Land Use Planning</i>
State code	6121EX031	6121EX030	6211EX028
Type of studies	University studies	University studies	University studies
Cycle of studies	First	First	Second
Mode of study and duration (in years)	Full-time (4 years) Part-time (6 years)	Full-time (4 years) Part-time (6 years)	Full-time (2 years) Part-time (3 years)
Credit volume	240	240	120
Qualification degree and (or) professional qualification	Bachelor of Engineering Sciences	Bachelor of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian, English	Lithuanian, English, Russian	Lithuanian, Russian
Minimum education required	Secondary education	Secondary education	Bachelor's degree
Registration date of the study programme	2014	26/09/2001	1995

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

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I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

The evaluation of study fields is based on the Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC) 31 December 2019 Order [No. V-149](#).

The evaluation is intended to help higher education institutions to constantly improve their study process and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) *self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI); 2) site visit of the expert panel to the higher education institution; 3) production of the external evaluation report (EER) by the expert panel and its publication; 4) follow-up activities.*

On the basis of this external evaluation report of the study field SKVC takes a decision to accredit study field either for 7 years or for 3 years. If the field evaluation is negative then the study field is not accredited.

The study field and cycle are **accredited for 7 years** if all evaluation areas are evaluated as exceptional (5 points), very good (4 points) or good (3 points).

The study field and cycle are **accredited for 3 years** if one of the evaluation areas was evaluated as satisfactory (2 points).

The study field and cycle are **not accredited** if at least one of evaluation areas was evaluated as unsatisfactory (1 point).

1.2. EXPERT PANEL

The expert panel was assigned according to the Experts Selection Procedure (hereinafter referred to as the Procedure) as approved by the Director of Centre for Quality Assessment in Higher Education on 31 December 2019 [Order No. V-149](#). The site visit to the HEI was conducted by the panel on 12 December 2021.

Prof. dr. Edoardo Patelli, *professor at University of Strathclyde (United Kingdom);*
Prof. dr. Tone Merete Muthanna, *professor at Norwegian University of Science and Technology (Norway);*
Prof. dr. Toomas Tamm, *professor at Estonian University of Life Sciences (Estonia);*
Prof dr. Dalia Štreimikienė, *Lithuanian energy institute (Lithuania);*
Tadas Paukštys, *student at Klaipeda State University of Applied Sciences (Lithuania)*

1.3. GENERAL INFORMATION

The documentation submitted by the HEI follows the outline recommended by SKVC. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site visit:

No.	Name of the document
1.	
2.	
...	

1.4. BACKGROUND OF THE STUDY FIELD/STUDY FIELD POSITION/STATUS AND SIGNIFICANCE IN THE HEI

Vytautas Magnus University (hereinafter VMU or the University) was established in 1922 and re-established in 1989. 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 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. VMU is an international and multilingual institution that continuously develops international networks and intercultural dialogues, participates in international scientific, academic and social projects, and encourages teacher and student mobility.

The study programmes in the field of Environmental engineering are carried out at the Faculty of Water and Land Management which started in 1946, when the first hydraulic engineers and land use planning engineers were trained. Since 1991, the Faculty has been implementing study programmes corresponding to the I cycle of bachelor's studies, and since 1995 of the II cycle of master's studies. The Faculty also conducts studies in the field of civil engineering (the study programme of Hydraulic Engineering of the II cycle is carried out).

Since 2012 the Faculty consists of three institutes: Hydraulic Engineering, Water Resources Engineering and Land Use Planning and Geomatics.

The I cycle study programme Water and Land Engineering is currently being implemented after the reorganisation of the previous study programme Water Resources Engineering at the Faculty (since 2014). During the reorganisation (2020) the study programme Water Resources Engineering was renewed by integrating into it the I cycle study programmes implemented at the Faculty: Land Use Planning (implemented since 1991), Hydraulic

Engineering (implemented since 1993), Fisheries and Aquaculture Technologies (implemented since 2014).

The study programme provides 3 specialisations: Land Use Planning, Hydraulic Engineering and Aquaculture Engineering. One of the main reasons for merging the I cycle study programmes, became the unsuccessful admission of students to the first- cycle studies conducted by the Faculty in 2019, when no profitable number of applications for study programmes was received.

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

The last external evaluation of the study programmes belonging to the field of environmental engineering was performed in 2013. The study programmes were evaluated positively.

II. GENERAL ASSESSMENT

Environmental engineering study field and **first cycle** at **Vytautas Magnus University** is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas

No.	Evaluation Area	Evaluation of an Area in points*
1.	Intended and achieved learning outcomes and curriculum	3
2.	Links between science (art) and studies	3
3.	Student admission and support	3
4.	Teaching and learning, student performance and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and public information	3
	Total:	23

*1 (unsatisfactory) - the area does not meet the minimum requirements, there are fundamental shortcomings that prevent the implementation of the field studies;

2 (satisfactory) - the area meets the minimum requirements, and there are fundamental shortcomings that need to be eliminated;

3 (good) - the area is being developed systematically, without any fundamental shortcomings;

4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings;

5 (excellent) - the area is evaluated exceptionally well in the national context and internationally.

Environmental engineering study field and **second cycle** at **Vytautas Magnus University** is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas

No.	Evaluation Area	Evaluation of an Area in points*
1.	Intended and achieved learning outcomes and curriculum	3
2.	Links between science (art) and studies	3
3.	Student admission and support	3
4.	Teaching and learning, student performance and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and public information	3
	Total:	23

*1 (unsatisfactory) - *the area does not meet the minimum requirements, there are fundamental shortcomings that prevent the implementation of the field studies;*

2 (satisfactory) - *the area meets the minimum requirements, and there are fundamental shortcomings that need to be eliminated;*

3 (good) - *the area is being developed systematically, without any fundamental shortcomings;*

4 (very good) - *the area is evaluated very well in the national context and internationally, without any shortcomings;*

5 (excellent) - *the area is evaluated exceptionally well in the national context and internationally.*

III. STUDY FIELD ANALYSIS

3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM

Study aims, outcomes and content shall be assessed in accordance with the following indicators:

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

(1) Factual situation

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

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

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

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

(2) Expert judgement/indicator analysis

The panel finds that the aims and learning outcomes of the study programs under review; the water engineering program and the land use planning program aligns well with the needs in society and stakeholders at large.

3.1.2. 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

(1) Factual situation

Vytautas Magnus University strategy for 2021–2027¹⁶ was approved by VMU Senate and Council on November 25, 2020.

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

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

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

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

(2) Expert judgement/indicator analysis

The HEI strategy is outlined in the SER with a clear alignment with the water engineering study program and the land use planning program. It is recommended that the strategy also should involve aspects of sustainability and sustainable consumption and reuse of resources, which are important aspects for the future of these two study programs.

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

(1) Factual situation

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

The study programmes also meet the following requirements:

- The Descriptor of Study Cycles in terms of the programmes goals and learning outcomes that are specific for the first and second study cycle;
- The descriptor of the study field in terms of the programmes goals, learning outcomes and the content of the programme courses (The Descriptor of the group of engineering study fields);
- The conformity of the study programmes to the general requirements for the implementation of studies is presented in Table 1.3 and Table 1.4.

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

(2) Expert judgement/indicator analysis

The program complies with the relevant rules and regulations as listed in the SER and table 1.3 in the SER. It is noted that the conversion of 1 ECTS to 26.67 hours of normal student working time, seems like an odd or at best theoretical conversion, and differs from other programs that has equated it to 30 hours. The conversion should be addressed to the ministry of education.

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

(1) Factual situation

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

Study topics are formed on the basis of learning outcomes - they include the objects that are included in the learning outcomes. Study methods are compatible with learning outcomes as well as assessment methods are compatible with study methods.

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

(2) Expert judgement/indicator analysis

The alignment as presented is good, and if implementation process will proceed as planned it will ensure greater compatibility of aims, learning outcomes and teaching and assessment methods. However, from the examples given, it is difficult to assess to what extent this is true for all courses and subjects. The evaluation and assessment of the final thesis is a concern of the committee because of the very high average score, and what seems to be an inflated scale of grades.

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

(1) Factual situation

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

In the I cycle study programme, general university courses, study field courses and courses of study fields related to it are taught in the 1st- 2nd year, in the 3rd-4th year - study field or related courses, professional activity practice is carried out. In this way, logical connections between the courses taught are formed, i.e. the courses of the study field or other study fields related to it are studied already having the general university and the necessary bases of the study field courses. Studies are completed with the defence of the final thesis. The aim of the final thesis is to independently apply the practical and theoretical knowledge acquired during

studies in solving specific environmental engineering tasks or problems, to determine the student's readiness for independent work. In separate specialisations of the Water and Land Engineering study programme, study courses and their content are arranged so that students learn: in Aquaculture Engineering - to design, build and maintain and manage modern open and closed aquaculture systems; in Hydraulic Engineering – to design, construct and maintain water engineering and other structures; in Land Use Planning - to prepare land use planning documents, perform geodetic works, cadastral measurements and assessment of land and other real estate.

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

(2) Expert judgement/indicator analysis

There is a clear alignment between study aims and outcomes and teaching methods and assessment. The ECTS credit systems align with EU standards, and there is a clear progression of complexity and level of task for the students.

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

(1) Factual situation

The program allows for individual study plans to meet specific learning needs. The Water Engineering program allows for credits for free electives.

(2) Expert judgement/indicator analysis

The program supplies students with sufficient choice for independent studies and plans.

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

(1) Factual situation

Students can defend their final theses after completing the study programme courses. In both study cycles final theses are defended at the end of the last semester. The program has a system for students to re-defend the final thesis at the earliest six months after the first defence. Thesis evaluations cannot be appealed however appeals may be lodged against breaches in the organisation of the final thesis evaluation.

(2) Expert judgement/indicator analysis

The program has a good structure for thesis development, and defence.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. This is a program with a clear need in the market and society at large
2. The program is well structured and with clear learning outcomes

(2) Weaknesses:

1. The alignment of aim and learning outcomes with methods and assessment is difficult to assess and should be revisited.
2. The study program has few students, in a field where the market is in need of more graduates. The reason for this mismatch needs to be further evaluated and mitigation actions should be identified.

3.2. LINKS BETWEEN SCIENCE (ART) AND STUDIES

Links between science (art) and study activities shall be assessed in accordance with the following indicators:

3.2.1. 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

(1) Factual situation

The VMU supports research-led teaching and collaboration among different institutions (Hydraulic Engineering, Water Resources Engineering and Land Use Planning and Geomatics). The teaching material is constantly updated as well as laboratory and scientific equipment.

The identified priority research activities are relevant and coherent with the societal needs and international landscape.

The quality of the research activities is recognised internationally and by a recent benchmark (Environmental Engineering was recognized as the best in Lithuania). There is also strong cooperation with external partners in research activities including European funded projects, ERASMUS+, collaborative projects funded by national research bodies.

There is a sustained and relevant output in terms of scientific publications on high-ranking journals, and participation in international conferences. The research activities are also supported by a strong doctoral programme with 8 students in the field of Environmental Engineering. The research activities are also supported by dedicated research staff (research

only). There is also a continuous improvement of the quality of the scientific activities as shown by the evaluation by the Lithuanian Science Council.

Knowledge exchange activities include participation at international conferences, seminars, and online events.

(2) Expert judgement/indicator analysis

The panel finds good aspirations about the future R&D activities supported with dedicated resources (funds/grants and research staff). There is a substantial improvement of R&D as outlined by the formal assessment of the Lithuanian Science Council. There are also very strong research groups recognised internationally and strong cooperation with international partners.

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

(1) Factual situation

The challenges and opportunities associated with climate change, smart technologies application of GIS and remote technologies, sustainable hydropower, flood risk management, intelligent water supply system are presented and included in the study programme. The content of the teaching material is updated on an annual basis in order to make their content aligned with scientific and technological development.

(2) Expert judgement/indicator analysis

There is a strong link between the content of the study and the latest scientific and technological developments, continuous improvements of the teaching materials and appropriate transfer of knowledge to the students of the SPs.

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

(1) Factual situation

Students participate in research/projects activities as part of the final theses preparation which includes a research review on the analysed topic (literature review).

The annual conference "Young Scientist" encourages students to engage in research, enriching their ability to properly present research results. Around 30 students per year attend this conference. 2 students presented at an international conference in 2017 in Estonia, 9 in Latvia (1, 15 and 0 in 2018, respectively).

The doctoral students are interacting with students of various levels in the research projects. 4 incoming doctoral students in 2017/2018 but none outgoing students.

(2) Expert judgement/indicator analysis

All students prepare a final thesis but the involvement in the research for most students is limited to the literature review. Good participation in a locally organised conference. The

panel finds evidence of good interaction with PhD students and participation in ongoing research projects but the attendance to international activities including visits and student exchange is modest.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Laboratory facilities and equipment are adequate to support the research activities;
2. Involvement in a significant number of international projects;
3. Excellences in research and international relevance by some research groups;
4. Up to date and relevant teaching material and laboratory activities.

(2) Weaknesses:

1. Research output with the involvement of students is still limited;
2. Associate Professors have generally limited scientific impact (e.g. low h-index factor);
3. Assessment of final projects is not always fair and consistent.

3.3. STUDENT ADMISSION AND SUPPORT

Student admission and support shall be evaluated according to the following indicators:

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

(1) Factual situation

VMU uses ten-point grade scale to calculate the competitive score. The competitive score is calculated by summing the weightings of two state exams and two courses. Pupils who have completed secondary education and competitions have their points added to their score.

The conditions for admission to the I cycle studies are published on the websites of LAMA BPO. The study programme is also presented at the study fairs in Kaunas and Vilnius, during school visits, and as well as organising various events for students at the University.

The number of applications submitted in 2017 for first priority applications 12. Number of admitted students full-time 16, part-time studying students were 2. Total number of applications 75.

The number of applications submitted in 2018 for first priority applications - 10. Number of admitted students full-time 4 and admitted part-time - 3. Total number of applications 47.

The number of applications submitted in 2020 for first priority applications 35. Number of admitted students full-time 16 and in 2022 none of the students were admitted part-time. Total number of applications 94.

(2) Expert judgement/indicator analysis

As stated by the students during the visit the panel finds that the student selection and admission criteria and process are acceptable and fair. VMU students understand how competitive it is to achieve the minimum required score to pursue their education at VMU. There haven't been any complaints about the admission process.

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

(1) Factual situation

Recognition of foreign qualifications at VMU is done centrally in the International Cooperation Department.

This procedure is performed in a decentralised way at the University. 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.

Current students participating in study exchange programmes agree on the study plan with VMU before leaving for a partner 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.

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.

In 2017-2020, there were 10 cases of crediting partial study results abroad, in 2017 - 6, 2018 - 4. There were 63 cases for recognition of previous and other learning acquired in other Lithuanian higher institutions, in 2018 - 2, 2019 - 39, 2020 - 22.

(2) Expert judgement/indicator analysis

The VMU has good requirements for international qualifications, partial studies, and other types of education. Although such procedures are in place and students are aware of that, according to the interview with VMU students, the panel finds that the procedures to recognise credits are only partially adopted.

3.3.3. Evaluation of conditions for ensuring academic mobility of students.

(1) Factual situation

VMU students are provided with possibilities to use Erasmus+ opportunities. To participate in an Erasmus + internship lasting from 2 to 12 months to one of many EU universities. 150 VMU students and graduates take advantage of this opportunity per year.

VMU students are also encouraged to participate in academic exchange programmes. Students can participate in the internship from 1 to 3 months with VMU mobility grants in companies/organisations outside the EU/ EEA. 10 VMU students take the advantage of this opportunity per year.

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.

Student rate for short-term mobility programmes who went to foreign higher education institutions (for one-week courses) - 5 in 2017, 20 in 2018, and 19 in 2019.

(2) Expert judgement/indicator analysis

The panel finds that mobility opportunities are provided to students. The opportunities mainly focus on Erasmus+ and academic exchange programmes. Students can also do internships in companies or organisations outside of the EU/EEA. The opportunities are wide and guaranteed for students.

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

(1) Factual situation

The staff of the Faculty, Academy administration office is available daily for consulting students on various academic and study organisation 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 a 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; and the Description of Procedure for Compensation for Tuition Fees.

In 2020, 5 I cycle students received incentive scholarships. In the period of 2017–2020, 50% discount for studies was granted in 8 cases, in 2019 - 4, 2020 - 4, 100% discount - in 18 cases, in 2017 - 1, 2018 - 2, 2019 - 7, 2020 - 8.

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.

VMU Student Council also takes care of student social support. It represents the interests of students and enhances 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 organises seminars and provides consultations on career planning issues.

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.

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

The number of all students in the field in 2018-2019 was 142. The number of students who have left for studies or practice 1.

The number of all students in the field in 2019-2020 was 69. The number of students who have left for studies or practice 0.

(2) Expert judgement/indicator analysis

VMU students recognise the expertise and knowledge received from teachers that are approachable and competent specialists. The panel finds that the teaching approach is quite traditional, but students with work experience have advantage in some modules.

The number of all students in the field has decreased more than double since 2017. Overall in 2017 - 2020 financial support was provided for 26 cases out of 367 which is relatively small.

3.3.5 Evaluation of the sufficiency of study information and student counselling

(1) Factual situation

Information on the studies is provided during various communication channels and means. All VMU students have free access to the University's intranet system for communication, cooperation and information exchange purposes. The necessary information is provided in-time, allowing the students to plan their study schedules.

First year students of the first study cycle receive information in the special annual event "Introduction to Studies". The introductory week includes faculty, academy and staff presentations, foreign language options, opportunities to study abroad, Student Council and academic clubs' presentations, information about the use of library resources, campus facilities.

(2) Expert judgement/indicator analysis

The student counselling and study information is sufficient. The VMU provides information through a variety of methods. General information are provided on VMU official website, social media ("Facebook") and newspapers. Specific information on courses, methodical material, are announced openly on the environment - Moodle. Information about various activities related to the study process is made by Faculty Day, Knowledge and Foreign Language Day, Opportunity Day, Registration Day, Sports, Wellness and Arts Day. These activities have a positive impact on students.

The Student Council and academic clubs' presentations successfully provide information about the use of library resources and campus facilities.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Great options and activities to find about study information;
2. Good student support in academic, financial, social, psychological and personal fields.

(2) Weaknesses:

1. None major weaknesses.

3.4. TEACHING AND LEARNING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT

Studying, student performance and graduate employment shall be evaluated according to the following indicators:

3.4.1. 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

(1) Factual situation

The main study and evaluation methods for both cycles are comprehensively described in SER. All study material has been transferred to the Moodle environment and the method of learning is also actively used today, as it is highly valued by students for adapting to their needs especially during pandemics.

The main study methods used during lectures: narration, interpretation, illustration of examples, document analysis, case analysis, analysis of problematic examples and questions, video review, summary of information, etc. Study methods used in laboratory works: analysis and interpretation of the obtained results, participation in the discussion, decision-making, performance of tests, observation, preparation and presentation of reports, etc. Study methods used in practical works: solution of tasks presented during the practical works, design and case analysis, interpretation and solution of tasks, etc. Practice study methods: interpretation, discussions, formulation of practical tasks or problems and demonstration of solutions, analysis of professional activity, preparation and presentation of reports, etc.

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

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

(2) Expert judgement/indicator analysis

Study programmes for both cycles flexibly apply teaching/learning methods that encourage the maximum learner to become involved in the learning process and become an active participant in the study process. Though students apply modern information technologies, more advanced teaching/learning methods like use of the latest software linked to practical experience of environmental engineers should be encouraged. The methods of evaluation of achievements are chosen so that in all cases the student understands the objectivity of evaluation and these methods are acknowledged and accepted by the students. Further opportunities for graduates to pursue studies are not well-described in SER; however students are aware about further opportunities to pursue further studies. Distance learning tools and use of Moodle is well-established in VMU and provides opportunities for students to study remotely than necessary.

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

(1) Factual situation

Socially vulnerable groups and students with special needs are given the opportunity to study according to an individual study schedule. Studies according to the individual study schedule are regulated by VMU Description of the Procedure for Providing the Individual Study Schedule. Students with special needs, if necessary, are consulted remotely using modern video tools, the teaching material is placed in a virtual environment.

Socially vulnerable groups receive different discounts for tuition or dormitory fees, scholarships are provided for these students. Students with disabilities are provided with conditions to park cars near the University building; the entrance to the buildings is constantly maintained and updated; equipment for disabled people in libraries, creating jobs for them; classrooms are equipped with furniture adapted for students with special needs; students have the opportunity to stay only in dormitory rooms adapted for them, if necessary, with an accompanying person; data on students with disabilities are integrated into the databases of the systems, thus facilitating the whole study process of students with disabilities.

The University organises various events for the disabled in order to integrate them into the life of the academic community.

(2) Expert judgement/indicator analysis

There are good conditions in place to ensure access to study for socially vulnerable groups and students with special needs, nevertheless there were no students for whom an individual study plan would be developed nor students with special needs during the evaluation period. There were 1-2 students annually belonging to socially vulnerable groups enrolled in Environmental Engineering programmes during the evaluation period

3.4.3. 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

(1) Factual situation

Monitoring of student achievement begins each semester when a student registers for a study or course. It consists of: 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 students' study progress is carried out through the study information system 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.

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

Each semester, students who did not participate in the intermediate assessments and received negative evaluations are recorded, as well as study courses with a level of non-progress of more than 30%. The summarised 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.

(2) Expert judgement/indicator analysis

The results of monitoring are applied for improvement of study quality. However, it is not clear how these several monitoring exercises applied in University are integrated and supplement each other. Based on indicators of average progress of students provided in SER it can be stated that students do not lose interest and motivation during all studies and do not question their choice.

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

(1) Factual situation

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

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 satisfied they are with their

current career situation and what has been most useful while preparing for their career at the University.

The cooperation agreement with the Employment Service, signed on the 6th of November in 2019. It allows VMU to 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.

A survey of graduates found that the professional activities of most graduates of the programme correspond to the acquired specialty and graduates work in such important state-owned enterprises as: the National Land Service under the Ministry of Agriculture (N = 22), the State Land Fund (N = 7), the Centre of Registers (N = 5). Other graduates work in their own or individual companies established by others.

Every year, the administration of the Faculty of Water and Land Management receives over 10 job offers for graduates of the Environmental Engineering field. Information on job offers is available on the website of the Faculty.

The Centre for Strategic Analysis of the Government (STRATA), the career portal karjera.lt and the magazine "Reitingai" do not provide data on the employment of graduates of the analysed study programmes 12 months after graduation. However, Sociological research company Prime consulting, commissioned by the magazine "Reitingai", in 2018, 2019 and 2020 surveyed employers in all regions (2192, 2194 and 2200, respectively) about graduates of individual higher education institutions and fields of study who had completed programmes in the field of Environmental Engineering. In 2018 22%, in 2019 25% and in 2020 28% of the surveyed employers indicated that they are most satisfied with the knowledge and skills acquired by graduates of Vytautas Magnus University in the field of Environmental Engineering.

(2) Expert judgement/indicator analysis

The employability rate is not provided in SER, however based on Sociological research company Prime consulting, commissioned by the magazine "Reitingai" and information on the quality of preparation for the labour market by interviewing students who have graduated from the study programmes. The survey data show that the absolute majority of graduates assess positively the quality of readiness for their work.

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

(1) Factual situation

The principles of integrity and Plagiarism prevention procedures are defined in the VMU Statute, VMU Study Regulation and the Code of Ethics of VMU.

In the case of dishonest student behaviour, teachers discontinue the student's performance and notify the Dean of the Faculty, the Chancellor of the Academy and the Department of Studies in writing. A final grade of 0 is written in the journal of study results for dishonest

behaviour during any assessment. The investigation is carried out on behalf of the Dean of the Faculty and a final decision is made.

VMU procedure for plagiarism prevention identifies 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.

(2) Expert judgement/indicator analysis

There are all procedures in place at VMU to ensure the effectiveness implementation of policies to ensure academic integrity, tolerance and non-discrimination. Students and teachers are aware about them. Nevertheless, there were no cases of violation of the principles of academic honesty, tolerance and non-discrimination in the analysed field of studies during the last 3 years.

3.4.6. 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

(1) Factual situation

Procedures for appeals and complaints of the study process are regulated by VMU Description of procedure for appeal investigation.

Students have the right to make appeals regarding the assessment of learning achievements or assessment procedures when they disagree with the teacher's assessment or identify the violation of assessment procedures. Students can make appeals by complaining of multiple choice assessments using the prescribed form, by complaining of any other form that breaches settlement procedures using a free complaint form. In case of additional, unforeseen circumstances, the student has the right to submit documents proving them, which affect the appeal.

(2) Expert judgement/indicator analysis

All procedures are in place to ensure the effectiveness of the application of procedures for the submission and examination of appeals and complaints. Students are aware of them. Nevertheless, there have been no complaint cases regarding the study process from students in the study field under evaluation in the last 3 years.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Students, graduates and employers are satisfied with the quality of programmes and faculty strives to improve it by collecting feedback from all relevant stakeholders
2. There is strong cooperation of VMU with social partners and alumni providing good opportunities to influence the quality of programmes and provide attractive employment opportunities for students

(2) Weaknesses:

1. More emphasis on development of practical skills of students is necessary through their involvement in companies during the study period
2. More emphasis on advanced learning and teaching methods, especially practising in using various modern software for environmental engineering is recommended.

3.5. TEACHING STAFF

Study field teaching staff shall be evaluated in accordance with the following indicators:

3.5.1. 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

(1) Factual situation

While the teaching workload has decreased due to the decrease in the number of students, the number of teachers has decreased less due to the increased research activity. The average ratio of the number of teachers of the study field courses and students is 1:12 and for the second cycle 1:10. In the realisation of the study program of Water and Land Engineering, 4 professors, 14 associated professors and 11 teacher, 71% holding PhD. In the realisation of the study program Land Use Planning participates 3 professors, 4 associated professors and 7 teachers, 85% holding PhD. Teaching workload is high, e.g. for professors it is 450 contact hours, but not not all are lecturing hours, but there is also tutoring etc. The Department of Science and Innovation monitors the annual activity reports submitted by teaching staff. There are both teachers who bring their theoretical-practical experiences to the students and practitioners who take part in the implementation of the study programmes. The teaching staff is also active in expert activities, and several lecturers belong to national boards and councils. It is acknowledged that hydraulic labs with a great number of hydraulic stands have been developed by the staff which will certainly enrich the study process with practical experience. The similar applies to the Land Use Planning SP.

(2) Expert judgement/indicator analysis

The figures provided for the number, qualifications and competence of the staff in the program are convincing and comply with legal requirements. The good qualification of the staff and the combination of research and practical experience make it possible to strengthen both SPs.

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

(1) Factual situation

Staff members actively use the opportunities of ERASMUS+programme. However, it is a bit peculiar to measure the benefits of mobility to improve the study process as in the SER '...7% apply new teaching methods and apply them in practical work, and 14% apply them quite well.' Such accurate results indicate very accurate measurements. Consequently, it could be

assumed that in 86% of cases the result was not so good. It is a matter of concern that guest lectures are not always the best, as the most advertised foreign professor in the SER (h-index 1) gave a lecture on a very general topic. The best contacts are with Poland, where 50% of the lectures came from. Due to the situation of COVID-19, the new virtual mobility was organised. The key teachers of SPs are well-known and have very good contacts abroad, which makes communication and mobility easy.

(2) Expert judgement/indicator analysis

The mobility figures offered are good, especially in adapting virtual mobility to overcome travel restrictions during a pandemic. Indicators used in SER to reveal the benefit of travel were somewhat questionable. There was no information on the sabbatical leaves in the SER, nor was it raised in a meeting with staff. If it does not exist, it should be added as a valuable opportunity for self-development.

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

(1) Factual situation

VMU has a well-structured self-education system which is regulated by the Description of Procedure for Professional Development at VMU. In addition to the training provided by the university, there are several other opportunities organized by other Lithuanian institutions as well as international institutions according to SER. Staff members are actively developing their didactic and professional skills. The teaching staff of the study programs meet the required standards in terms of scientific competence, teaching and working experience.

(2) Expert judgement/indicator analysis

The conditions for upgrading staff competencies can be considered good and staff are making effective use of the opportunities offered.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

- 1.
2. There is an active development of teaching competence
3. Lectures actively participate in various mobility programs

(2) Weaknesses:

1. The selection of guest lecturers reveal some weaknesses

3.6. LEARNING FACILITIES AND RESOURCES

Study field learning facilities and resources should be evaluated according to the following criteria:

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

(1) Factual situation

According to what is written in the SER, the rooms used for the learning process are well equipped with multimedia devices, and there are also good opportunities for distance learning. Visual information about specialised labs and equipment is impressive. There is a very representative range of hydraulic-hydrometric products for water engineers and the latest geodetic instruments for land surveyors and management, and a good set of up-to-date software. The Lithuanian geo-informational database is available free of charge whenever it is needed in the study process. The university library plays an important role in constantly monitoring the need for information and collecting electronic information and traditional printed documents. There are a large number of working places with a great number of computers. The adaptation of all buildings to people with special needs can be considered a very positive aspect.

(2) Expert judgement/indicator analysis

The facilities, especially the hydraulic laboratories, are well equipped and suitable for the teaching and practical training of both SPs. The information sources in the library and the software available are good and relevant, however as it was stated in SER the updating of teaching materials in Lithuanian needs attention.

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

(1) Factual situation

The university has a system for monitoring and updating hardware and software.

(2) Expert judgement/indicator analysis

The procedures for planning, maintenance and upgrading of infrastructure are not described in detail, however, according to the very good set of equipment the Panel concludes that the planning and upgrading is functioning well.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Judging by SER and added material and the results of the interviews, the study programs have well equipped laboratories and modern equipment that fully meets the needs of providing quality education.
2. Upgrading resources and planning maintenance seems to work well.

(2) Weaknesses:

1. The updating of teaching materials in Lithuanian needs attention.

3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION

Study quality management and publicity shall be evaluated according to the following indicators:

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

(1) Factual situation

The SER reports that 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 specialisations.

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

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

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

(2) Expert judgement/indicator analysis

The panel finds that parts of the SER are challenging to follow, and the section about the internal quality assurance program is one of those sections. It summaries the system, but responsibilities are unclear. It is also unclear how or to what extent student complaints are handled in a serious and unbiased manner. It is recommended that this is reviewed. A well functioning study program will have student complaints, so a zero vision is not a good goal here.

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

(1) Factual situation

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

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

University surveys reveal general trends, and for deeper analysis, departments conduct context-sensitive feedback gatherings through discussions, interviews, focus groups, and other methods. The survey results as well as other information about studies are 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 Institute and the Dean of the Faculty; they are also presented during the meetings with students and teachers.

(2) Expert judgement/indicator analysis

The process of involvement of students and stakeholders in feedback is good. However it is not clear how mitigation plans are developed based on the results of the analysis. The SER identifies several issues in the results, but there is no outlined process of how to deal with these issues. Mitigation actions should be developed.

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

(1) Factual situation

Information about studies is gathered, analysed and evaluated in order to assure regular self-evaluation and improvement. Annual analysis of studies allows identifying shortcomings in time and taking 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 evaluation invites students to think over their own learning and consider possibilities for improvement.

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

The SER states that results of internal evaluation (surveys, stakeholder discussions, statistical data, etc.) are applied to improve quality of studies.

It is reported that there is often a lack of student activism in evaluating 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.

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

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

(2) Expert judgement/indicator analysis

The Panel is not entirely satisfied with the content of the SER. Statements like "Results of internal evaluation (surveys, stakeholder discussions, statistical data, etc.) are applied to improve quality of studies". This does not really explain how this is dealt with, it is a very general and vague statement. The committee encourages the Study program to be more specific about the measures and actions in this section.

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

(1) Factual situation

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

According to the survey "EXIT2020" (four-point scale, when 4 - the highest grade), the students of the II cycle Land Use Planning programme evaluated the assistance provided by the administrative staff and the suitability of the equipment of auditoriums, laboratories and other study premises even with 3.94 points; with 3.90 points - the opportunity for international mobility. Students lack opportunities to learn various foreign languages (3.08). The students evaluated the usefulness of the preparation and defence of the final thesis with 3.75 points, when with 4.00 points evaluated the possibility to deepen the skills in their field, and the lowest - 3.44 points rated the improvement of creativity skills. It is also worth noting that 75% of students' work is related to the completed study programme and appreciates VMU's contribution to the preparation for professional activities. The students evaluate the generalised quality of the study programme with 3.77 points, and with 3.80 points - they would recommend others to study in this programme. According to the results of the survey "Assessment of Teaching and Studying" (ten-point scale, when 10 is the highest grade, 2020-2021 academic year), the average assessment of teaching quality is 9.88 points. It is worth noting that students only positively assessed the work of teachers, their applied study methods, which encouraged active involvement in the course. The students also indicated that the teachers clearly presented the study content and supplemented it with examples and comparisons, the teaching was well organised. Students evaluate their work during their studies (attending classes led by the teacher, performing tasks given by the teacher, etc.) as follows: 29% - excellent, 65% - very good, 7% - good.

It is not possible to present the opinion of the students of the renewed study programme Water and Land Engineering on the quality of studies after graduation, because, as already mentioned, the renewed study programme was started only in autumn of 2020 and there are no students who have completed this study programme yet. However, reviewing the opinion of students studying in this study programme at the end of the first year of study, the survey "Assessment of Teaching and Study" (ten-point scale, where 10 is the highest grade, 2020-2021 academic year) shows that students value teachers' work and study very well - even by 9,19 points. The students scored the best points on the teachers' ability to clearly present the content of the study course and supplement it with examples (9.53), teachers' professional ethics (9.40) and the ability to properly organise the study process (9.25). Also, the evaluation of teachers according to the evaluation criteria clear to the student and the basic study information provided by the teacher in VMU Moodle or other distance learning environment (9.00) were very well evaluated. However, students lacked some constructive feedback on the tasks performed by themselves or the group (8,88). 7% of students rated their work during their studies (attending practically all or most of the classes) as excellent, as average - 53%, as

satisfactorily - 27% and as bad - 13%. Thus, based on the rather high evaluations of the renewed study programme Water and Land Engineering reviewed above, it can be stated that the quality of teaching is really very good, but it is somewhat limited only for the students themselves to be more motivated to study more actively.

(2) Expert judgement/indicator analysis

The general feedback is very high scores for the land use planning program, while the water engineering program is too new to have any graduates yet. Though high scores are positive the committee questions if the full picture of feedback is revealed with such high scores. The committee encourages that the Study program investigates if the number of answers is representative of all the students' view points, and how they can increase the participation rate in the survey, which the SER reports is low.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Well documented method of feedback and information
2. The exit survey is very good, but it is a concern if the answers are representative.

(2) Weaknesses:

1. There is no system or process for development of actions or mitigation strategies for identified issues or shortcoming based on feedback from stakeholders and students.
2. It is unclear how the process of dealing with complaints ensures an open and unbiased review of the complaint.

V. RECOMMENDATIONS

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	<p>The alignment of aim and learning outcomes with methods and assessment is difficult to assess and should be revisited.</p> <p>The study program has few students, in a field where the market needs more graduates. Including more circular economy and resource reuse including water reuse should be explored to ensure a current and relevant program.</p>
Links between science (art) and studies	<p>The engagement of students in research activities is still limited.</p> <p>Thesis in collaboration with industry/social partners and more practical are evaluated more favourable. Therefore, the assessment of final dissertation seems not always fair and it does not encourage scientific output.</p>
Student admission and support	<p>The use of a different learning and assessment procedure should be encouraged to increase the engagement of students and inclusion.</p>
Teaching and learning, student performance and graduate employment	<p>More emphasis on development of practical skills for students is necessary through their involvement in companies during the study period. Also more advanced learning and teaching methods, especially practising in using various modern software for environmental engineering are recommended.</p>
Teaching staff	<p>International mobility must be meaningful and contribute to the development of the quality of study programs</p>
Learning facilities and resources	<p>In order to ensure the use and funding of laboratories, actions are needed to increase the number of students</p>
Study quality management and public information	<p>The format for feedback is limited to surveys and questionnaires. A broader choice of methods for feedback from both students and stakeholders.</p>

VI. SUMMARY

Main positive and negative quality aspects of each evaluation area of the study field Environmental engineering at Vytautas Magnus University:

Main positive quality aspects:

- Programmes are relevance and aligned with the needs of the society by including advanced topics such as Nanotechnology, Internet of things, digital solutions, sustainability of material and engineering solutions;
- The study programmes contain interdisciplinary elements;
- There is a clear need for graduates at bachelor and master levels. High skilled employees that have good knowledge in modern technology and transferable skills (e.g. critical thinking, time management). The employers are satisfy of the quality of the graduate;
- Good and accessible facilities and labs and they seem adequate for the SPs.
- There are some excellence in research with very strong researchers, good internationalisation of the research activities and good aspirations about the future R&D activities and commitments;
- The students appreciate the combination of theoretical activities with lab works. They recognise the quality of teachers, their approachability, knowledge and experience in the field.

Room for improvements:

- The self-evaluation report sometimes is difficult to follow and some important missing information (but most of it obtained during the visit to Vytautas Magnus University).
- The bachelor study programme is struggling recruiting students perhaps due to some entry requirements of the length of the study programme (4 years vs 3 years offered by other universities).
- The evaluation of the final thesis needs to be improved with a better balance of the marks. The current process seems to give some advantages to students that are already working to provide a thesis related to the current working activities.
- More efforts should be used to increase the engagement of students with research activities (students seem not to be engaged or knowledgeable about the opportunity).
- Although the alumni and employers have a positive and supportive opinion of the quality of the graduates, there is the general feeling that the university does not adequately value their vision and their opinions. For instance, they would like (and they should) be involved in the recruitment process (to improve the intake of students).

Expert panel chairperson:

Prof. dr. Edoardo Patelli