CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD of CIVIL ENGINEERING

at VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

Expert panel:

1. **Associate Prof. dr. George Markou,** *(panel chairperson), member of academic community;*
2. **Professor dr. Tonu Meidla,** *member of academic community;*
3. **Professor dr. Nikolaos Theodossiou,** *member of academic community;*
4. **Professor dr. Marija Malenkovska Todorova** *member of academic community;*
5. ***Mr. Tomas Bedulskij,*** *students' representative.*

Evaluation coordinator – *Jūratė Čergelienė*

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2021

Study Field Data*

Title of the study programme	Civil Engineering	Construction and Real Estate Management	Road, Railway and Urban Engineering
State code	6121EX039	6121EX069	6121EX037
Type of studies	University studies	University studies	University studies
Cycle of studies	First cycle	First cycle	First cycle
Mode of study and duration (in years)	Full time, 4-year studies Extended, 6-year studies	Full time, 4-year studies Extended, 6-year studies	Full time, 4-year studies Extended, 6-year studies
Credit volume	240	240	240
Qualification degree and (or) professional qualification	Bachelor of Engineering Sciences	Bachelor of Engineering Sciences	Bachelor of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian	Lithuanian
Minimum education required	Secondary education	Secondary education	Secondary education
Registration date of the study programme	19/05/1997	21/05/1997	19/05/1997

** if there are **joint / two-fields / interdisciplinary** study programmes in the study field, please designate it in the foot-note*

Study Field Data*

Title of the study programme	Structural Engineering	Road Safety Management	Roads and Railways
State code	6211EX040	6211EX044	6211EX039
Type of studies	University studies	University studies	University studies
Cycle of studies	Second cycle	Second cycle	Second cycle
Mode of study and duration (in years)	Full time, 2-year studies	Full time, 2-year studies	Full time, 2-year studies
Credit volume	120	120	120
Qualification degree and (or) professional qualification	Master of Engineering Sciences	Master of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian	Lithuanian
Minimum education required	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent
Registration date of the study programme	19/05/1997	31/08/2009	01/09/2004

** if there are **joint / two-fields / interdisciplinary** study programmes in the study field, please designate it in the foot-note*

Study Field Data*

Title of the study programme	Geotechnics	Innovative Road and Bridge Engineering*	Urban Engineering Information Systems
State code	6211EX038	6281EX002	6211EX046
Type of studies	University studies	University studies, Joint degree programme	University studies
Cycle of studies	Second cycle	Second cycle	Second cycle
Mode of study and duration (in years)	Full time, 2-year studies	Full time, 1,5-year studies	Full time, 2-year studies
Credit volume	120	90	120
Qualification degree and (or) professional qualification	Master of Engineering Sciences	Master of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian	Lithuanian
Minimum education required	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent
Registration date of the study programme	19/05/1997	01/02/2014	01/02/2010

** if there are **joint / two-fields / interdisciplinary** study programmes in the study field, please designate it in the foot-note*

* Innovative Road and Bridge Engineering is a joint degree program with Riga Technical University.

Study Field Data*

Title of the study programme	Building Information Modelling	Construction Materials and Products	Construction Technologies and Management
State code	6211EX045	6211EX072	6211EX043
Type of studies	University studies	University studies	University studies
Cycle of studies	Second cycle	Second cycle	Second cycle
Mode of study and duration (in years)	Full time, 2-year studies	Full time, 2-year studies	Full time, 2-year studies
Credit volume	120	120	90
Qualification degree and (or) professional qualification	Master of Engineering Sciences	Master of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian	Lithuanian
Minimum education required	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent
Registration date of the study programme	01/07/2015	19/05/1997	21/05/1997

** if there are **joint / two-fields / interdisciplinary** study programmes in the study field, please designate it in the foot-note*

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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 remote site visit to the HEI was conducted by the panel on 25-26 November, *2021.*

Associate Professor dr. George Markou, *associate professor at Pretoria University (South Africa);*
Professor dr. Tonu Meidla, *professor at Tartu University (Estonia);*
Professor dr. Nikolaos Theodossiou, *professor at Aristotle University of Thessaloniki (Greece);*
Professor dr. Marija Malenkovska Todorova, *professor at University "St.Kliment Ohridski" – Bitola (North Macedonia);*
Mr. Tomas Bedulskij, *second cycle student of Asian Studies at Vilnius University (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.	Additional information on QMS
2.	Example of student appeal management procedure
3.	Example of systematized process of students' feedback about the subject teacher
4.	Explanation of the appeal procedure at VILNIUS TECH
5.	Example of: audit plan, audit report, faculty level analysis report, QMS action plan, university level analysis report, QMS staff

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

As stated in the Self Evaluation Report (hereafter –SER), Vilnius Gediminas Technical University (hereafter - VILNIUS TECH, University) is a state higher education institution established by the Seimas of the Republic of Lithuania. The University is public and is one of Lithuania's biggest higher education institutions, seeking to become a leading technical and engineering university in the Baltic States region.

The university's main objectives are to:

- educate qualified, creative and socially active professionals, able to successfully integrate into Lithuanian and global scientific community and labour market;
- conduct international-level research, concentrating scientific activities in the most competent research divisions and attract renowned scientists;
- develop research-based innovations for society and businesses;
- become the leader among the Baltic States universities in the fields of sustainable construction, transport, sustainable environment, information and communication technologies;
- promote cohesive development of the country and region;
- develop an innovative society.

The University has two higher collegial governing bodies – the Council and the Senate. The Council approves budget and strategy, while the Senate is responsible for academic related issues. The Senate overlooks four committees:

1. Research Committee,
2. Studies and Students Committee,

3. Development and Quality Committee,
4. Legislation and Ethics Committee

Departments are the entities responsible for academic and research activities. They materialize academic and research objectives set by the University and the Faculty. Laboratories and other units operate within Departments, while they are managed by the Heads of the Department (hereafter - HoD).

There are 29 study fields at the University (Engineering, Informatics, Mathematics, Technologies, Social Sciences, Business and Public Management, Humanities and Arts). There are 12 study programmes within the Civil Engineering study field out of which 3 are Bachelor's and 9 Master's degrees. These are the 12 study programmes that are being evaluated herein. Seven hundred and twenty-eight students are currently studying within Bachelor's programmes in the Civil Engineering field, comprising 9% of the University's students. The field consists of 4 academic members of the Lithuanian Academy of Sciences, 35 professors and senior researchers, 87 associate professors and doctors of science.

The Civil Engineering department is an important academic part of the large University's community that produces the much-needed engineers that resource the private and governmental sectors of Lithuania. The sustainability and further development of the Civil Engineering Department is of outmost importance to the University and the society that it serves, especially at a time where the Lithuanian construction industry experiences significant growth.

II. GENERAL ASSESSMENT

Civil Engineering study field and first cycle at Vilnius Gediminas Technical University (VILNIUS TECH) 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	4
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:	24

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;
2 (satisfactory) - meets the established minimum requirements, needs improvement;
3 (good) - the field is being developed systematically, has distinctive features;
4 (very good) - the field is evaluated very well in the national and international context, without any deficiencies;
5 (excellent) - the field is exceptionally good in the national and international context/environment.

Civil Engineering study field and second cycle at Vilnius Gediminas Technical University (VILNIUS TECH) 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	4
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:	24

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;
2 (satisfactory) - meets the established minimum requirements, needs improvement;
3 (good) - the field is being developed systematically, has distinctive features;
4 (very good) - the field is evaluated very well in the national and international context, without any deficiencies;
5 (excellent) - the field is exceptionally good in the national and international context/environment.

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 tuition in the field of civil engineering is shared between the Faculty of Environmental Engineering (four programmes) and the Faculty of Civil Engineering (five programmes). The programmes are covering together the subfields of civil engineering that are relevant in the context of the Republic of Lithuania.

The Vilnius Gediminas Technical University (VILNIUS TECH) accents the importance of the construction sector and the particular role of civil engineering for the GDP and development in Lithuania and emphasises the uniqueness of two more specialised BSc programmes in Lithuania. The Civil Engineering study programme aims at training specialists in design, construction maintenance and geotechnical research of buildings, structures and geotechnical structures. The Construction and Real Estate Management study programme aims at training construction managers as well as specialists in building and construction management.

The programmes held by the Faculty of Environmental Engineering are all addressing the development of urban and transport infrastructure. Graduates of the programme Urban Engineering Information Systems are educated to solve problems in the field of urban engineering systems. The programme Road Safety Management is preparing graduates who will be able to solve road infrastructure safety management issues, the programme Roads and Railways prepares the specialists with ability to solve the current problems of road and rail infrastructure and programme Innovative Road and Bridge Engineering specialists for development of transport infrastructure. The spectrum of programmes taught at the Faculty of Civil Engineering is wider. Graduates of the programme Structural Engineering study programme are able to calculate and construct modern reinforced concrete, steel, timber and mixed (steel-concrete) structures. The programme Building Information Modelling is preparing experts and modelling specialists in BIM. Graduates of the Construction Materials and Products study programme are prepared to organise the production and development of new construction materials and products and the programme Construction Technology and Management aims at preparing specialists of management and engineering in construction and also including maintenance, planning, design and consulting. The programme Geotechnics provides education in geotechnical engineering. All listed aims are relevant consider the general objectives of civil engineering in the country in an adequate manner and several of them address innovative aspects of the field. The relevance of the education in the field of civil engineering is demonstrated by the satisfaction of employers and social partners with the

overall quality of graduates. There is only very limited factual information provided about employment rates, age structure and dynamics of the pool of specialists in the field but both the university representatives and the social partners are declaring a shortage of specialists of civil engineering in the labour market. The VILNIUS TECH is also gaining benefits from its location in the capital, an area with the highest activity of construction works and the best economic climate. The claimed high employment rate of young specialists after graduation is indirectly supported by common early employment of the MSc students. This demonstrates that the aims and outcomes of the study programmes in general conform to the needs of the society and the specialists are acknowledged in the labour market.

(2) Expert judgement/indicator analysis

The expert panel concludes, based on the documentation of the study programmes and information gathered during the site visit, that the aims and outcomes of both the first and second cycle programmes obviously conform to the needs of the society and the labour market.

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

Education in the field of civil engineering is in line with the Strategy of VILNIUS TECH, with its overall mission to educate creative and competitive specialists who bear public responsibility, are engaged in research, know the latest technologies and cultural values, promote scientific progress, social and economic well-being and development. The very ambitious vision of VILNIUS TECH is widely recognised and prestigious institution of higher education that is ranked among the best responds to environmental challenges and contributes to the social, scientific and economic progress of the nation. One of the VILNIUS TECH priority areas of development is Sustainable Construction, comprising a number of themes, like Environment friendly materials and technologies, Architecture and urban environment, Building information modelling and sustainable life cycle, Sustainable transport, Traffic safety technologies, etc. All these themes are directly linked to the tuition in the field of civil engineering.

(2) Expert judgement/indicator analysis

The expert panel acquired sufficient proof from the documents and interviews that the studies are based on the needs of the country's economy and the needs of the society, as well as on the strategy of the VILNIUS TECH.

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

(1) Factual situation

The objectives of the programmes and the learning outcomes have been developed in accordance with the Descriptor of the Study Field of Engineering approved by Order of the

Minister of Education and Science of the Republic of Lithuania (V-964, 10.09.2015) and the Requirements for the Development and Provision of Study Programmes, approved by the Resolution of Vilnius Gediminas Technical University Senate (107-2.2, 11.12.2018).

The scope (credit volume) of courses in the BSc programmes ranges between 3-12 ECTS. The number of contact hours varies between 5-15, but is mostly kept at the level of up to ten hours per 1 ECTS and the percentage of contact hours is 36.6-38%. The total number of courses within the study field is 153-174 credits in the BSc programmes (requirement according to the Order of Minister of Education and Science of the Republic of Lithuania on approval of description of general requirements for the provision of studies, No. V-1168, 30.12.2016 cited as GR below, is not less than 120 credits). The scope of practice and final thesis in all programmes comprises the minimum required level of GR (15 credits). For MSc programmes, the amount of contact hours varies between 5-10 for smaller subjects and as low as 3.3-6.6 for subjects of six or more credits. The number of contact hours per week comprises mostly 10-13 (for a 1.5-year course 16 hours per week) that is rather low but still conforms to the requirements of GR (≥10%). The total number of study courses in the narrow field varies between 60 and 90 ECTS (GR requirement is not less than 60 credits), final theses exceed the minimum set by the GR (30 credits) and factual credit equivalent of the thesis is 39 ECTS as the subjects entitled Research Work 1, 2 and 3 (3 ECTS each) form an integral part of the final thesis. Professors are involved in teaching more than 20% of the courses.

(2) Expert judgement/indicator analysis

The expert panel observed that both the first-level and second-level study programmes are in full compliance with the legal requirements.

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 subjects are organised in modules and the programmes are built of modular blocks. Descriptions of the modules include expected learning outcomes and teaching and assessment methods that depend on the expected learning outcomes.

The presented materials contain evidence that the achievement of learning outcomes is not well monitored and evaluated. The relations matrices that VILNIUS TECH has presented for describing the relationships between the learning outcomes show that the objectives of the study programmes are generally in accordance with the Description of the Fields of Engineering Studies (Order of the Minister of Education and Science of the Republic of Lithuania, No V-964; 10.09.2015) but the content of subjects of the same title in the matching tables is not uniform. The same courses may provide different learning outcomes within different study programmes, both on BSc and MSc level (e.g. Chemistry: learning outcomes Z1 (Fundamental knowledge about nature and its phenomenon for an integrated professional activities) & GT1 (Ability to collect and analyse the data solving important scientific and professional problems….) in Civil Engineering, Z1 & GT2 (Holistic view while making

professional decisions, balancing costs, benefits, security, quality, reliability and effect on the environment) in Construction and Real Estate Management and Z1 & ACG1 (Ability of team working in groups consisting of specialist of different engineering fields and to present design solutions to various audiences) in Road, Railway and Urban Engineering). The same is true for more specialised subjects (i.e. General Engineering and Digital Graphics, Integral Calculus, Construction Economics, Building Architecture and Structures, Integral Mechanics, etc.), and also several subjects in the MSc programmes (i.e. Fundamentals of Research and Innovation, Research Data Processing and Numerical Analysis, Roads and Streets Network Planning, etc.). The differences in learning outcomes that are clearly expressed in relation matrix are indicative of the lack of unified standards and requirements for the same subject offered by different lecturers to different audiences. This is not in line with the overall high quality standards that the university claims to be characteristic of the programmes.

The assessment of all subjects is based on a multitude of methods, from examinations to homework checks and project defences. For the majority of BSc subjects, more than one method is applied.

Individual tasks and projects are reasonably introduced for different subjects.

The level of obtained knowledge and learning outcomes is evaluated using a ten-point assessment scale where 10 and 9 refer to the outstanding level of performance, 8 and 7 cover the average level and 6 and 5 embrace the threshold level of performance. This applies to all credits assessed by grades. The grading system agrees with the requirements of the Order of the Minister of Education and Science of the Republic of Lithuania On the Approval of Learning Outcomes Evaluation System (No. ISAK-2194, 24th July 2008) and the respective information is available on the VILNIUS TECH web page. The assessment system as a whole looks trustworthy and is integrated into the organisation of the subjects and study programmes.

(2) Expert judgement/indicator analysis

The expert panel concludes that overall compatibility of aims, teaching/learning and assessment methods is demonstrated whilst the definition of learning outcomes and standardisation of course content is not consistent and needs to be developed.

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

The study programmes contain field specific knowledge and skills that are offered in a logically ordered sequence. Logical links between the subjects are primarily ensured through the requirement that students have to finish previous subjects, in order to be able to start the subsequent ones. The order of subjects is fully dependent on the programme structure.

The system of study programmes is highly sophisticated. The number of first level programmes is high (4) and the number of second level programmes is very high (9).

Additionally to the high number of study programmes, several of them contain multiple specialisations. For example, The the first cycle programme Civil Engineering has three specialisations already since the first semester: Design of Building Structures, Design of Bridge Structures, Geotechnics. Two specialisations are introduced after the fourth semesters of full-time studies in the programme Road, Railway and Urban Engineering. The need for early specialisation is insufficiently substantiated in the self-evaluation documents, particularly considering the very high number of specialised programmes at the master level and very flexible admission rules to the second level programmes (presented in the university website; access to a MSc programme is usually granted from a multitude of BSc programmes). In this light, the very high number of first level programmes and specialisations does not look justified.

Specialisation also starts very early in MSc studies. In the Structural Engineering programme, the specialisations open up since the beginning of the first semester. In Annex 1, these specialisations are actually called 'Master study programmes' (Advanced Light-Gauge Structures, Building Structures, Special Structures and Structural Engineering, Bridges and Viaducts) that looks misleading at the first glimpse but overlap between the programmes of specialisations is just minimal and one of the specialisations has the same name as the whole programme. This means that the so-called specialisations are in fact effectively functioning as separate programmes, overall making the total number of MSc programmes and specialisations unreasonably high.

Individual subjects seem to have logical positions on the array of increasing competence within the programmes but it is not convincingly explained how the differences in qualifications of admitted MSc students will be addressed.

Several subjects of the BSc programmes have seemingly similar content as the names of the subjects are identical or very similar in different study programmes, but they are offered under different codes, are given by different staff members and their learning outcomes may be different (the issue was addressed above, chapter 3.1.4). There are still remarkable overlaps between the programmes, for example, the content of programmes of Civil Engineering (admission numbers 70 and 88 in 2020 and 2021, respectively) and Road, Railway and Urban Engineering (admission 10 and 13 students, respectively) is almost identical for the first two semesters but the courses in different programmes have different codes and mostly different responsible staff members. The reason for teaching the same subjects separately to 10-13 students of the programme Road, Railway and Urban Engineering and 70-88 students of Civil Engineering remains unclear but this arrangement suggests a certain amount of duplication to exist in the system of modules and courses. This indicates that the studies are not organised in a fully sustainable manner. It remains also unclear if the same quality standards apply for tuition of different groups, but considering the heterogeneity of learning outcomes of courses within different curricula this seems not to be granted.

(2) Expert judgement/indicator analysis

The expert panel recognised that the overall structure of studies is generally ensuring consistent development of competences of students but complaints are arising from the heterogeneity of various aspects of the studies and from unnecessarily high number of programmes and specialisations at both BSc and MSc levels.

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

Students have some opportunities for personalising the studies that still seem to be strictly based on prescribed opportunities of the individual programmes.

Some of the BSc programmes have several specialisations that in some cases (i.e., in the programme of Civil Engineering) open upstart diverging from the very first semester year of studies (making this programme effectively functioning more like three independent programmes). Apart from the basics of natural sciences, elective subjects of the narrow speciality are offered in each curriculum and are in some cases arranged in sets (modules) consisting of several subjects. The choice of free electives comprises only 6 credits (two 3-credit elective subjects) within the BSc programmes, 2.5% of the total amount of credits. This is not fully sufficient for development of personal complementary skills or broadening specialist's horizons.

The self-evaluation report (Table 1.2) states that three of nine MSc programmes contain one fully elective subject (2.5% of the total credit volume) but the programme plans in Annex 1 confirm this for two programmes only (Urban Engineering Information Systems, Construction Materials and Products). Seven programmes (including the Civil Engineering programme with its five specialisations) contain no room for electives. The Regulations of Studies also contain a chapter about individual study plans, but this is addressing redistribution of subjects and lowering the semester workload for students who would like to take the subjects and modules of the programme(-s) during a longer period. This adds no flexibility to the possibility of free selection of subjects.

The electives are complemented with a selection of the topics of graduation papers. The topics are proposed by the departments but in some programmes (e.g. Civil Engineering, Road, Railway and Urban Engineering) students are encouraged to propose their own topics that are directly related to the study programme field. These opportunities add some flexibility to the programmes but, judging from the SER, the possibility of proposing student's own topics may not be available in all programmes.

(2) Expert judgement/indicator analysis

The expert panel concludes that some of the programmes offer opportunities of selecting subjects only within the programme and contain only very limited opportunities for students to personalise the structure of studies according to their personal needs. These very limited

opportunities for personalising studies are not equally available within the programmes. This aspect of the organisation of studies needs to be developed.

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

(1) Factual situation

The preparation and defence of final theses are regulated by the Final Thesis Preparation and Defence Procedure is regulated by the description approved by the VILNIUS TECH Rector's Order (10.8-575, 12.06.2019). The lists and formats of required documents, as well as topics of the BSc theses are specified by departments, the respective information is uploaded to the departmental web pages at the beginning of each academic year. The topics of the final theses are proposed by the departments but students can also propose their own topics (if they are relevant) and coordinate the themes with their professional work activities. Within the programme of Road, Railway and Urban Engineering and in the MSc programmes, the topics can also be proposed by social partners. The list of final theses and supervisors is approved by the Dean's decree.

Work on the BSc final thesis spans two semesters and students have to present three parts of the thesis (Bachelor Graduation Thesis 1, 2 and 3) during two semesters. The credit equivalent of parts of a final thesis varies between the BSc programmes, in the programme Road, Railway and Urban Engineering. Peculiarity of the Construction and Real Estate Management programme is the possibility of preparing a final thesis (called the Final Project) as a group of two-three or even more students, with permission of the head of department. Subtopics are clearly identified for each student and individual goals are set.

Requirements for the Final Thesis are clearly set for each programme. The titles and abstracts of all the final theses are published on the departmental websites.

The Bachelor's Degree Awarding Commission is appointed with the Rector's order and consists of five specialists involving researchers and practitioners-professionals, including at least one representative of a different study field. No less than three members of the Commission must have academic degrees and/or academic titles. The Commission is chaired by a practitioner (who is not employed by the VILNIUS TECH). The theses are reviewed by the members of the teaching staff.

The theses are defended at the meeting of the Assessment and Defence Commission for Final Thesis and the Degree Awarding Commission. The students of the programme Construction and Real Estate Management have demonstrated the best performance.

An MSc thesis is raising the scientific problem and solving it, demonstrating ideas and methodology that are appropriate for the selected object. Preparation of a thesis starts with an instruction lecture. Work on the thesis is divided into stages that are assessed in the format of interim reports. MSc students are encouraged to publish the study results of final theses in conference/seminar proceedings and this allows the Degree Award Commission to add one point to the assessment of the final thesis.

The Degree Award Commission of the MSc theses is affirmed by the Rector's order and includes a panel of 5–7 competent specialists – scientists, practitioners, representatives of social partners. The chairperson of the Commission and at least two more members must have a scientific degree

or pedagogical title, and one member may come from another higher education institution. In the case of the joint study programme Innovative Road and Bridge Engineering, the Commission is formed of academic staff from both partner universities.

In case of a failure of the defence of a BSc or MSc thesis, a new thesis must be prepared.

The topics of the BSc thesis are very clearly addressing documentation of various commercial and residential buildings, bridges and foundations or comprise geotechnical or road reconstruction projects. The investigation of the examples of theses is convincingly demonstrating that their complexity level conforms to the study cycles and demonstrates the ability of students to find professional solutions to the tasks set by the faculties.

(2) Expert judgement/indicator analysis

The expert panel concludes that the regulations, documents and routines, as well as the lists of topics and examples of the final theses demonstrate full compliance of final theses with field and cycle requirements.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The aims and outcomes of both the first and second cycle programmes conform to the needs of the society and the labour market.

2. The studies are based on the needs of the country's economy and the needs of the society as well as the strategy of the institution.

3. The study programmes are in full compliance with the legal requirements.

4. The overall compatibility of aims and teaching/learning and assessment methods.

5. The overall structure of studies is generally ensuring consistent development of competences of students.

6. The content and complexity level of the final theses, as well as defence procedures are fully compliant with field and cycle requirements.

(2) Weaknesses:

1. The unnecessarily high number of programmes and heterogeneity of the arrangements and learning outcomes are not indicative of good organization and high efficiency of the tuition processes.

2. The content and learning outcomes of the individual subjects are not defined with sufficient clarity.

3. The programmes offer very limited opportunities for personalising the studies and this aspect is not equally developed in different programmes.

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

In 2019, VILNIUS TECH, according to the QS World University Rankings, was placed amongst the top 100 best universities in the world in the "Engineering – Civil & Structural" subject field (#51-100). Implementation of applied research is obligatory to teaching staff and researchers. All VILNIUS TECH teaching staff holding a science degree need to dedicate 1/3 of their working hours to research activities. Mandatory research production is also envisaged in the University's Procedure for Attestation and Setting Minimum Qualification Requirements. The staff performance management system includes incentives for R&D activities such as high-quality research production, project implementation and development of project applications. Ongoing research projects contribute to the development of research production and encourage participation in scientific conferences, which have a significant impact on the growing number of high-level research articles. Project funding creates additional opportunities; therefore, the Departments' researchers are actively involved in the development of both national and international project applications. In addition, the projects provide an opportunity to upgrade or purchase new research equipment, as Departments do not have their own funds.

Members of the Teaching Staff participated in the following six Horizon 2020 projects since 2015:

- Regeneration and Optimisation of Cultural heritage in creative and Knowledge cities (ROCK);
- Building Information Modelling based tools & technologies for fast and efficient RENovation of residential buildings (BIM4REN);
- Network to Use BIM to Increase Energy Performance;
- Students Achieving Valuable Energy Savings 2"(SAVES2);
- Integrated Components for Complexity Control in affordable electrified cars (3Ccar);
- Advancing fail-aware, fail-safe, and fail-operational electronic components, systems, and architectures for fully automated driving to make future mobility safer, affordable, and end-user acceptable"(AutoDrive).

They also participated in two COST actions (2013-today), and in nine Erasmus+ projects (2015-today). All projects include large international consortia.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that research and teaching staff of Vilnius Gediminas Technical University are strongly involved in R&D activities.

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 study content is linked to the latest scientific and technological developments through the personal competence of teaching staff. All Department staff is involved in research projects for technological development and innovation, publish articles in WoS research journals, participate in conferences, and initiate patenting activities. Some experts are members of international and national organisations or committees.

International research projects are implemented in cooperation with social partners, thus creating opportunities to develop students' research skills. Researchers actively cooperate with external partners (i.e. other higher education institutions and social partners – public institutions, companies and associations). One of the forms of cooperation is customised research. In 2017–2019 customised research was implemented for the market-leading companies and public institutions, such as Lithuanian Railways PLC, Lithuanian Road Administration SE, Lithuanian Airports SE, Public Institution Transport Competence Agency, Vilnius City Municipality Administration and others. The total value of the customised research during the period under review amounted to 6.9 million EUR.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that research and teaching staff of VILNIUS TECH were involved in R&D activities, introduce the results of their research to the study program.

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

The links between science and studies are ensured by presenting the field of research and the involvement of students in research, which constitutes an integral part of their studies. Students are encouraged to provide an overview of the latest research achievements in the field by preparing written reports and participating in discussions. These activities aim to teach students to immerse themselves in the latest research and learn how to use their results in their research activities. Students are encouraged to prepare potential research projects during the final thesis preparation, choose the topic, and anticipate research results. The teaching staff gives special attention to the provision of individual and group consultations to students. Students are provided with opportunities to participate in research projects.

Students are provided with opportunities to participate in research projects. For example, in the period under review (2017–2019), around 40% of students of the Road, Railway and Urban Engineering study programme were offered an opportunity to deepen their knowledge in VILNIUS TECH Road Research Institute and Institute of Territorial Planning projects dedicated to the following topics:

- Research on road and street pavement structures (three students were involved);

- Research on road and street construction materials (22 students were involved);
- Road safety research and analysis, audit (five students were involved);
- Development of sustainable mobility plans (one student was involved).

Students (usually in the second cycle of studies) are encouraged to enter research projects during the summer, when they are free from studies. They would gain research experience and benefit from extra funding. There were several students who used the possibility for such an experience in 2017– 2020.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that VILNIUS TECH students are given the opportunity and are encouraged to get involved in research activities.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The members of the staff are highly qualified, and their scientific fields cover a wide area. Many of them are involved in several national and international research projects. This provides the opportunity for students to gain from their experience.

2. The department is very highly placed in international rankings in the "Engineering – Civil & Structural" subject field.

3. Students are offered the opportunity to participate in research projects and work in research institutes.

4. The students' projects and dissertations include research elements.

(2) Weaknesses:

1. The number of students participating in international agreements, especially through the Erasmus program, can be improved.

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

VILNIUS TECH organises admissions to these first-cycle study programmes in *Civil Engineering* field: *Civil Engineering* (full-time), *Civil Engineering* (part-time), *Civil Engineering* (taught in English), *Construction and Real Estate Management* and *Road, Railway and Urban Engineering*. Admissions are organised during these periods: a) Pre-admission to non-state-funded places b) Joint admission, co-organised with LAMA BPO c) Institutional admission to non-state-funded places. The process is conducted following national as well as institutional regulations. Generally speaking, the intake for students is rather stable or fluctuating, except for the *Road, Railway and Urban Engineering*, which shows a steady decrease. Admission to *Civil Engineering* (taught in English) is stable. VILNIUS TECH makes centralised and faculty-level efforts to market their study programmes – as for the faculty-level, the Faculty of Civil Engineering and the Faculty of Environmental Engineering runs several successful and popular promotional campaigns (one of which is *Pasta Bridges*, organised by the Faculty of Civil Engineering), representatives from the faculties visit secondary schools and the information about the studies is clearly described on the VILNIUS TECH website.

The VILNIUS TECH web page puts it in a concise and clear way. It is organised institutionally and the „DreamApply" platform is used for a more convenient user experience. Country specific requirements are also presented.

As for the second-cycle studies, VILNIUS TECH organises admissions to 9 study programmes: *Structural Engineering*, *Road Safety Management*, *Roads and Railways*, *Geotechnics*, *Innovative Road and Bridge Engineering*, *Urban Engineering Information Systems*, *Building Information Modelling*, *Construction Materials and Products* and *Construction Technologies and Management*. Admissions are organised institutionally in two stages and each study programme has minimum as well as programme-specific requirements for entrance. If an entrant has not collected obligatory course credits in BSc, he may take examinations on missing subjects. College graduates may need to take additional studies (30–120 ECTS credits) or equalization studies (2 years) before admissions, but it seems that VILNIUS TECH has only *Construction and Real Estate Management* for this method.

The situation with students' intake could be categorised into three parts – a) Growing number of students (*Structural Engineering*) b) Stable number of students (*Road Safety Management*, *Roads and Railways*, *Geotechnics*, *Construction Materials and Products* (although these two latter programme has very low number of students)) c) Decreasing number of students (*Road and Bridges Engineering*, *Urban Engineering Information Systems*, *Building Information Modelling*, *Construction Technologies and Management*). There are two study programmes conducted also in English – *Structural Engineering* (SER does not provide how many foreign

students applied for that) and *Innovative Road and Bridge Engineering* (none enrolment since 2018, only two entrants in 2017).

(2) Expert judgement/indicator analysis

VILNIUS TECH makes a great effort to market their first-cycle study programmes nationally and internationally – it is reflected in students' intake numbers. The information about the admissions is clear and it is conducted according to national and institutional rules. There is a danger sign for the *Road, Railway and Urban Engineering*, because admissions show a decrease in the number of entrants, so targeted marketing strategy would be needed. The SER indicates that this may be due to general decrease in interest with the *Civil Engineering* field among secondary school graduates (p. 35), but this information is contradicted in the SER by stating that the interest among secondary schools' graduates is increasing (p. 34).

As for the second-cycle VILNIUS TECH has quite a lot of programmes to offer in the *Civil Engineering* study field. Notwithstanding the stability of admissions to several study programmes, there are more programmes with very low, decreasing or non-existent intake rate which may show a general decrease in imaginary relevance of some graduate programmes among BSC graduates. As interviews with social partners revealed that every programme is relevant, it may signal a need to create a sustainable and consistent marketing plan for MSc studies. Also, there seems to be a lack of part-time studies (only one is present), so entrance rates could be increased by introducing more part-time studies for college graduates.

VILNIUS TECH can be commended that it has clearly described the country specific requirements for international admissions – together with the usage of the "DreamApply" platform, this may create a positive experience admitting to study programmes taught in English.

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

From 2015 VILNIUS TECH has the right to carry out the academic recognition of foreign qualifications. The university also has regulations on partial studies as well as non-formal and informal learning recognition. The SER provides data on the recognition of partial studies differently – as for the first-cycle, there is a table 3.5. with results of studies and traineeship courses completed abroad by the number of ECTS (2017–2020 total number of studies – 1435 ECTS; traineeships – 138 ECTS), whereas the SER of second-cycle table 3.3. provides data according to the number of MSc students (2017–2020 total number of studies – 500 students; traineeships – 12 students). Needless to say, these numbers are general for the university and not for the *Civil Engineering* field, which is provided in more detail in the next section.

Non-formal and informal learning can be recognized if a person has completed secondary education and has at least 2 (for BSc) or 3 (for MSc) years of experience in the respective field.

During the last 5 years, there was none from the *Civil Engineering* field who applied for this procedure.

(2) Expert judgement/indicator analysis

The SER states that data regarding the recognition of foreign qualifications is compiled and analysed but the SER lacks any type of analysis in this topic. The recognition of partial studies is conducted in a positive way, although it would be more clear to analyse the data not only in scope of total credits acquired but also taking into account students (head-count) number.

The regulation document for the recognition of non-formal and informal learning provides slightly different information from SER – second-cycle SER states that a candidate must have at least 3 years of practical experience in a specific field, but the regulation requires only 2 years of experience. Such discrepancies must be addressed. The experts received additional information about the applications for non-formal and informal learning recognition and it appears that no students applied during the last 5 years. This may indicate a general lack of information about this topic. Also, it is quite difficult to find information on the web page – although the regulations can be found quite easily, it seems that there is no separate section in the VILNIUS TECH website regarding this topic.

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

(1) Factual situation

VILNIUS TECH students can apply for exchange studies or traineeships abroad – more specifically, the *Civil Engineering* study field has 112 agreements with partner universities available for students and staff mobility. Some of the first-cycle study programmes have targeted mobility opportunities – students of *Construction and Real Estate Management* are able to participate in several short term mobility programmes; students of *Road, Railway and Urban Engineering* can participate in one-week long summer programme. Moreover, the Faculty of Civil Engineering is organising a joint summer school with California Polytechnic State University and it seems that students are participating in this school (16 students participated in the period 2018–2019). As for the second-cycle, there seems to be no additional mobility opportunities like short-term mobility or summer schools.

The VILNIUS TECH website provides information about mobility opportunities in a clear way, they can download "Excel" files with filtered partner institutions according to each study field. Students can consult with Erasmus+ coordinators which are assigned to each faculty. The rate of mobility each year for first-cycle students in the field is relatively stable and it is 5 %. The rate of mobility for second-cycle students remains quite low due to socioeconomic reasons (students are working and cannot afford to lose their jobs by taking mobility opportunities). The total number each year is 4–8 students.

(2) Expert judgement/indicator analysis

It is good practice to provide first-cycle students with additional mobility opportunities such as short-term mobility or summer schools. Nevertheless, the mobility rates are quite low and

the SER does not filter this data according to each study programme. This may mean that mobility is uneven and some programmes need more attention in regards to the mobility. Moreover, this study field, in theory, has broad mobility opportunities regarding the number of partner institutions (112), but in practice, students of *Civil Engineering* have 22 partner universities they can apply to. This number varies because some of these institutions cannot be accessed by BSc students or they have languages apart from English prerequisites.

In addition, students currently have to download "Excel" documents with partner institutions. It would be a welcome change to have this practice converted to a separate section on the website without a need to download documents. This is a minor detail, but it would look more adequate and bring a more positive image to the university.

The situation with second-cycle mobility indicates very low mobility – moreover, the SER does not filter the data according to each study programme. Compared to the first-cycle, second-cycle students could have at least short-term mobility available for them – it is understandable that students cannot quit their jobs, but such innovations as one-week or a bit longer mobility could compensate for the lack of internationalization in the second-cycle.

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

VILNIUS TECH implements these methods of academic support: a) The introductory course for BSc first-year students "Introduction to Studies" b) Mentors (senior students) and tutors (teaching staff members) c) Information provided on the website, Moodle platform d) Individual consultations with teaching staff members e) Career consultations and seminars, organized by the Academic Support Centre f) Consultations with the staff of the department and dean's office (regarding mandatory, optional courses, their impact on future careers, etc.). Thus, proactive and reactive means for academic support are present during the whole study period. It seems that MSc students have all of the academic support opportunities except for the introductory course and mentors as well as tutors.

Talking about the financial and social support, VILNIUS TECH has incentive scholarships, single incentive grants, single scholarships (for active cultural, sports and other social activities), social allowances, single allowances and nominal scholarships (the faculty also has some unique nominal or targeted scholarships, for example "Kelių priežiūra PLC" targeted scholarships for those who are admitted in 2020–2021, 5 students received it). Students with special needs are eligible to receive financial support from the Department for the Affairs of the Disabled. Tuition waivers for students with high academic results are also present.

Students can ask for psychological support. Currently, one psychologist is working and the consultations are free of charge.

(2) Expert judgement/indicator analysis

VILNIUS TECH puts effort into academic support for BSc students, but it seems that MSc students are left with lesser possibilities. The absence of mentors and tutors for MSc students is not a negative point in itself, because these students can be perceived as able to be independent, but at least one mentor or tutor per faculty would be beneficial – especially for those who enter from other HEIs. Thus, more proactive measures could be implemented. Currently, supervisors for the final thesis could be interpreted as unofficial tutors, but having an official person in charge of the process may help with the quality of consultations.

As for social support, VILNIUS TECH has substantial opportunities, but the SER does not reflect numerical data about various scholarships, grants and so on. Needless to say, experts received additional data about single allowances and tuition waivers during the period 2017–2020, but there was no information regarding other forms of financial and social help. If the university or the faculty does not practice analysis of financial and social help, the experts would recommend to do periodical analysis to assess the status quo and make necessary changes in allocation of university finances if needed.

There is only one psychologist working at the university. It may be beneficial to increase the number of psychologists keeping the fact that psychological help for students is free of charge. Free and anonymous psychological help is a praised aspect and it must be continued.

Lastly, the SER provides an institutional point of view about university and faculty services regarding academic and other forms of support – the students' opinion on these services could also be analysed in order to assess the quality of these processes.

3.3.5 Evaluation of the sufficiency of study information and student counselling

(1) Factual situation

BSc students have "Introduction to Speciality" (a course, addressing more speciality-related issues) and "Orientation Week". Students can consult with their lecturers face-to-face, by phone or via email. Students also have a consultation week where they can get more information from the lecturers regarding their assignments. This situation is the same with both cycles (except for the introductory courses).

Study information can be found on VILNIUS TECH (and faculty) "Facebook" page, website, bulletin boards, Moodle or it can be received from the lecturers, mentors, tutors or other parties who can consult.

(2) Expert judgement/indicator analysis

The concept of "Orientation Week", where first-year BSc students during the early September have introductory lectures, seminars and / or workshops about general information about the University, is a commendable action, implemented by the VILNIUS TECH. Moreover, BSc students are able to get acquainted with their speciality during the course "Introduction to Speciality". This indicates that VILNIUS TECH is investing in the social and academic integration of BSc students. The evaluation team believes that this endevour has to be

continued and that the content of the course or the programme of the "Orientation Week" should be periodically revised. Needless to say, second-cycle first year students should also have at least one day or one introductory lecture about the most important social-academic information, which is most needed for students who enroll from other Lithuanian HEIs.

Furthermore, the informational environment was found to be quite good, where VILNIUS TECH seems to have a substantial amount of information for students provided in both Lithuanian and in English.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The information about the admissions for foreign students is well described. VILNIUS TECH has public information regarding the country-specific requirements for international students, which is not a common, but surely commendable aspect.

2. First-cycle students are able to have short-term mobility experience. This practice should be transplanted into all study programmes of the *Civil Engineering* field to boost mobility rates.

3. Mentors and tutors for BSc students (together with other counselling services) indicate a positive academic and other support environment. There may be a need to adapt tutorship for MSc students as well.

4. Information published for students is substantial in both Lithuanian and in English languages.

(2) Weaknesses:

1. At least 50 % of second-cycle study programmes indicate a dangerous decrease in intake of students. Compared to the efforts made to market BSc programmes, there is a need to put broader and more elaborate marketing for the MSc studies that would be continued during the whole year and not only before the admissions' period.

2. The regulations regarding the recognition of non-formal and informal competencies should be revised as it was identified as a major difference from the information provided in the SER. Moreover, this sphere remains underdeveloped – there is a lack of information as well as no practice regarding the process of recognition.

3. Students' mobility rate is very low. There may also be a need to introduce short-term mobility opportunities for second-cycle students.

4. BSc first-year subject "Introduction to Studies" requires assessment of its relevance – integration of BSc students into university could be done by other means, for example an "Orientation / Welcome Week". MSc student integration should also be evaluated.

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

Studies are organised in compliance with the Study regulation, the timetable and the Rector's order, the decree of the Vice-Rector for Studies or the Dean.

The study programme description is defined by the Study Programme Committee and the teaching staff plan and implement their courses in correlation with it. It is apparent from the SERs and the provided annexes that both theoretical and practical training is organised in order for students to achieve the intended learning outcomes. The most common forms and methods of the studies (in line with expected study results) are applied, including individual and group consultations. Practical works imply more independent activities performed on-site (laboratory work – experiments and applied research).

Lectures and exercises for part-time students, but also for full-time students during the pandemic, are organised remotely via Moodle, Zoom or Teams platform. The University developed the procedures for organising academic and administrative staff's work under quarantine, necessary hardware and software were installed for remote working and all other technical requirements were met (WEB cameras, headphones, Zoom licenses etc.).

The Procedure Description for Student Performance Assessment and Earning Credits is available, giving details on credit forms and assessment, assessment data sheets, (in an electronic format, completed in the *manoVGTU*, as a subsystem in the frame of University Information System), the procedure for earning full credits as well as interim credits, assessment scale of learning outcomes, assessment of the course unit (module) results, a cumulative assessment of academic performance, possibilities and ways for exam retakes. Description of the Procedure for Organisation of Traineeships in First and Second Cycle Studies is used for legal regulation of traineeships organization, regarding general principles, description of the student knowledge assessment procedure, description of the procedure for the preparation and defence of examination sessions and final thesis.

The document named "On the approval of the description of the assessment and settlement of the achievements of Vilnius Gediminas Technical University" and "On the Approval of the System of Assessment of Study Results" are valid for second cycle studies, too.

Students receive credits for their individual work that is evaluated by interim credit. The assessment of the interim reports within the course during the semester may range from 30 to 70 % (inclusive) of the final assessment for second cycle studies, which means that a lot of

attention is paid to the students' motivation to work independently and their autonomous learning.

Applying the mentioned procedures is oriented towards fulfilment of the recommendation of the previous panel team for „more transparent learning assessment and grading schemes should be adopted for course work, internships and final thesis. "

The expected workload of students depends on the study cycle and study programme. Therefore, for the first study cycle, the percentage of hours for independent work ranges from 61% to 62%, comparing with the overall hours, while at the second study cycle the distribution of hours ranges from 17% to 26% for classroom works and from 74% to 83% for independent work (SERs and provided annexes).

There are adequate further study opportunities for graduates on the first cycle and possibilities for continuation of studies closely, but not completely, related to the finalized study programmes by choosing supplementary studies according to an individual program, if the differences are 30–60 ECTS credits or participation in the competition for Master's studies with other applicants if the differences do not exceed 30 ECTS credits.

Graduates of the second cycle have the possibility for direct transition to the third cycle at Vilnius Gediminas Technical University or another higher educational institution.

(2) Expert judgement/indicator analysis

The University's presentation of this indicator, as well the discussions with teachers and students, point out that there is an aligned system of standards, curriculum, instructions and assessment, legally regulated in the frame of Institutional structures (Rector, Vice-Rector for studies, Dean, Programme Committee), and documents (Procedure Description for Student Performance Assessment and Earning Credits, Description of the Procedure for Organisation of Traineeships at First and Second Cycle Studies, On the approval of the description of the assessment and settlement of the achievements of Vilnius Gediminas Technical University, On the Approval of the System of Assessment of Study Results).

Applied teaching and learning methods provide students with opportunities to engage in individual work, critical thinking, and creative problem solving. The implemented assessment methods reflect valued learning processes and desired content outcomes.

The team also notes that the University promotes independent learning, bearing in mind the study cycle and intended learning outcomes. Therefore, in such a University environment, students are more motivated to learn and more actively involved in the study process. Additionally, it should be emphasized that the student view of their teaching, learning and assessment environment, supported by responses in the student surveys, is quite positive. However, as expressed to the team during meetings with the students, there is a need for improving the contents and way of delivering some study subjects.

Bearing in mind the recommendation of the Review Panel from the previous evaluation regarding "Formalizing the involvement of the students and social partners in the process of programme management", regular meetings with the mentioned stakeholders are organized.

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

(1) Factual situation

The University offers a flexible schedule of assessments for students with a disability, taking into account their needs and level of disability, as well as partially or entirely exempt from tuition fees. Students with a higher level of health disabilities (I and II group), are exempt from paying the admission fee. Moreover, under certain circumstances students with disabilities are granted a monthly allowance (for first cycle students).

The functionalities of the Moodle platform are used for the distribution of support materials for students with disabilities.

The University campus is adjusted to the needs of students with mobility disabilities (e.g., sanitary facilities (toilets), ramps and elevators). That includes the library as well (equipped with a Braille printer and Braille device, three video magnifiers, four special keyboards and alternative mice, and a tactile printer). The University benefited from the project "Ensuring access to studies for students with special needs" implemented by the State Studies Foundation, and got equipped with special software and hardware, specialised furniture and various tools for students with disabilities.

If in need, students with disabilities, like all other students, can apply for emotional or short-term psychological support provided by the University psychologist. Additionally, training sessions for educational assistance specialists and teachers, towards recognizing and understanding the needs of these groups of students are organized.

The University supports students 'study, through different types of financial support (single allowance – for 48 students, reimbursement of the tuition fee – for 13 students for the period from 2017 until 2020).

(2) Expert judgement/indicator analysis

In order to facilitate the study process of socially vulnerable groups and students with special needs, different kinds of support (financial incentives, adjustment of facilities, applying of appropriate teaching and learning methods, training sessions for teachers and educational assistance specialists), are undertaken.

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

Observing and checking the student study progress is carried out at three levels: University, Faculty and study Programme.

The results of the exam sessions are summarised and discussed twice per academic year – a month after the last exam retake, and the Study Programme Committee may initiate changes in the curricula or single course if an established reason causes low study results. The Faculty Studies Committee discusses substantial programme changes.

Formal control of study progress is prescribed in the VILNIUS TECH study regulations. Also, a "Plan of Measures for Monitoring and Improving Students' Performance" is developed for monitoring and ensuring better student performance, where all the tasks, measures and responsible units are listed and identified.

The rate of dropouts is high (admissions vs. graduates), but the University tries to perform better by introducing higher requirements for applicants, for the first cycle. This can be seen as one of the measures, since lowering the number of admitted students can be a future consequence too. Bridging studies and transferring from one to another type of studies (regular to part-time) are good modes to be mixed with higher admission requirements to combat numbers of dropouts. Additionally, increased attractiveness of second cycle studies and intensive MSc courses introduction are put in place. These courses are suitable for working people. The platform for the presentation of the survey of dropouts is currently being tested as well.

Teachers provide oral (face-to-face consultations) or written (Moodle platform, email) feedback on students 'study performance. *Mano*.VGTU information system is widely used for accessing data on students' exam accomplishments and estimates of obtained credits.

There are regular surveys of the study process and its participants(a survey of students on the quality of teaching, a survey of administrative staff; a survey of fresh students; a survey of international students; a survey of students cancelling their studies; a survey of students on professional training; a survey of graduates on career opportunities; a survey of social partners/employers; a survey of students on social environment) and are undertaken under provisions of The Description of the Procedure for Organising the Surveys of Study Process Participants. The results of the surveys are regularly analysed (Academic Affair Office, Deans, Vice-Deans of faculties, Heads of Departments, Chairpersons of the Study Programme Committees), and disseminated and students' opinion has a direct impact on the decision regarding the study process improvement. *Mano.*VGTU information system is also used as a survey results platform.

Identification of individual causes of lack of progress is practiced and measures are undertaken, accordingly (i.e. for second cycle studies repeating the course, continuing studies

with academic debts (two debts is the limit), having an academic leave, or having a gap year/semester in studies are offered options).

(2) Expert judgement/indicator analysis

The team notes that the University recognizes the influence of continuous monitoring of student study progress and giving feedback to students on the quality of the study process. The above mentioned is confirmed throughout the analysis of the SER and the discussions in the frame of the online visit. This means that a student's current level of performance is determined and evaluated on a regular basis, and, if there is a need, different measures are put in place. Additionally, the feedback helps students to improve their learning by providing them with specific information on the improvement needed.

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

(1) Factual situation

The University tracks the dynamics of graduates' careers and highlights the main areas in which graduates find employment by the help of LinkedIn platform, where 26,550 follow the institution profile (18% of graduates are employed in the Engineering field in 2019 – first study cycle).

The Employment Service under the Ministry of Social Security and Labour of the Republic of Lithuania is another source of data on graduates' employment and job seekers for Study Programme Committees that analyses the provided data, monitors individual study programmes and graduates' careers and organizes study quality surveys. The rate of graduates involved in such surveys is over 30% that is considered sufficient, but leaves space for improvement, in order further decisions not to be questioned. Social partners are also interviewed.

The Government Strategic Analysis Center should provide data on the employment qualifications of graduates 12 months after graduation, but, as stated in the Report, the last data available are for 2018. More detailed data on graduates' employment within 12 months after graduation can be obtained by the Study Quality Evaluation Center interrelated with those from the National Agency for Education.

The rates of employment provided in the Report (surveys conducted in 2020 refers to the persons who graduated in the last three years), are satisfactory. Namely, the obtained results per study programme, indicate that the largest percentage of students working in the field of study programme during their studies. Additionally, there is high percentage of other graduates whose professional activities are in line with the study field.

Graduates and employers provide their opinion on the level of graduates' professional competencies through surveys (the latest one was conducted in 2020). Generally, the results show that most of the interviewed are satisfied by professional competencies and appropriateness of the workload but that there is a need for practical knowledge and skills, along with negotiation, planning and organisational, problem-solving and decision-making

skills improvement. Based on the employers' opinion and the recommendations from the Lithuanian Construction Association, a new course on Construction and Real Estate Finance and Investment has been introduced.

There is sufficient proof for high demand in construction, structural engineering and civil engineering, road safety management, roads and railways, innovative road and bridge engineering, geotechnics, urban engineering information systems, building information modelling, construction materials and products, construction technology and management specialists. Graduates/Alumni opinion is taken into consideration when updating all of the study programmes.

(2) Expert judgement/indicator analysis

The expert panel is pleased to note that the attention of this higher education institution is focused on the positions their graduates attain in the labour market. Continuous monitoring of graduates' employment and career is based on a range of information from different sources, (not only from the University). Additionally, the organized surveys of graduates and stakeholders provide information which this University uses to get to understand what competencies are needed for better employability, how these competences are related to characteristics of companies, to what extent the graduates possess these competences, to what extent this Institution provides them, and, which is very important, how to adapt the study process to the requirements of the professional environment.

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

(1) Factual situation

The principles of academic integrity are defined in the Vilnius Gediminas Technical University Code of Academic Ethics. This legal act contains: details regarding objectives for which it was enacted, ways of implementing and supervision of its provisions, standards of academic ethics. Plagiarism, cheating, data falsification, fabrication, forgery of examination or credit test scores, use of external help during an exam or a credit test, submission of someone else's written work as one's own, earning money by preparing written works for other students, purchasing a written work and submitting it to a member of the academic community for evaluation, submitting the already assessed written work for assessment in another course etc. are considered cases of student's dishonesty. Strict sanctions are prescribed in cases of ethics principle violation as upon admission, each student signs the Declaration of Integrity of a Student, which is valid throughout the study contract. A specialised text matching verification system is used to check the amount of matches in the uploaded reports, comparing them with active and archived websites and international scientific databases, as well as previously uploaded publications and other sources of information for identifying plagiarism.

The University strongly reacts to discrimination against language, behaviour, or academic assessment, and the tolerance of such discrimination, or being humiliated by the exercise of powers conferred.

Three cases of academic dishonesty have been noted in the Civil Engineering study programme and no breaches of the principles of tolerance and non-discrimination have been reported.

(2) Expert judgement/indicator analysis

It is apparent from the Self Evaluation Report and on-line visit discussions, that academic integrity, tolerance and non-discrimination are responsibilities of the whole University community. The Code of Academic Ethic, Declaration of Integrity of a Student are legal documents which present the Institution's management of student academic misconduct and maladministration cases, ensuring confidence among stakeholders in the value and credibility of this Higher Education Institution.

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

Submission and examination of appeals and complaints regarding the study process is regulated in the Description of Procedures for Resolving Student Appeals and Complaints and the Description of Student's Knowledge Assessment Appeals Submission and Examination Procedure. The procedures are explained in detail, covering various appeals and complaints, responsibilities and basic operating principles of the Board of Appeals, as well as further actions to follow (pre-procedure steps, documentary check, deadlines, hearing sessions, responsible bodies, cases and types of decisions etc.).

In accordance with the explanation of the appeal procedure (provided by the University), there is a University Appeals Commission (permanent commission consists of 3 student representatives), as well as Faculty Appeals Commission. The Commission (on University level) is in charge of complaints against University or Faculty management, while the Faculty Appeals Commission is responsible for complaints against teaching staff.

Students can submit appeals for performance assessment scores, and appeal against breaches of knowledge assessment procedures (there are recommendations regarding the commission's structure). Namely, when it comes to appeals related to the assessment score, the commission should consist of 3 – 5 teachers competent in the field of study the course is related to and one person competent for performance in a particular course unit. Representatives of the Legal Affairs Office, Academic Affairs Office and students should be part of the commission that deals with appeals for knowledge assessment procedure breaches.

(2) Expert judgement/indicator analysis

Students have rights submitting appeals and complaints regarding various parts of the realization of the study process. The submission procedures are explained in detail in several University legal acts.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Adopting various teaching, learning and assessment methods based on the specific course learning objectives.

2. Taking measures to improve study conditions for socially vulnerable groups and students with special needs.

3. Procedures for systematic progress monitoring and feedback to students.

4. Continuous monitoring of graduates' employment and career based on a range of information from different sources.

5. The importance of the University's dedication to principles of academic integrity, tolerance and non-discrimination.

6. Legal procedures for submitting appeals and complaints regarding the study process have been put in place.

(2) Weaknesses:

1. Deficits of graduate professional and management skills.

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

Annex 5 (first cycle study programmes) and Annex 9 (second cycle study programmes) of the SER, presents the scientific degree, subjects taught, research interests, scientific, as well as pedagogical and practical experience of the teachers (who are on part-time position and employed for at least three years), involved in different study programmes of both study cycles.

The concrete numbers of teachers with different experience in teaching, scientific or professional field depends on the analyzed study programme. But, bearing in mind the contents of the mentioned list, it can be concluded that the number of teachers and their scientific and professional experience is sufficient for successfully delivering the study courses. Additionally, the research area is appropriate for the content and learning outcomes of the subjects they teach.

Staff members are also involved in the activities of various national and international professional associations.

The qualification of the teaching staff is one of the basic prerequisites for employment. (Faculty Attestation Commission, the decision of the Faculty Council). Moreover, in order to get the best possible study results, Study Programme Committee members and junior teachers, attend lectures related to applying innovative teaching methods. (experienced teachers are in charge of the realization of this activity). The Faculty Study Committee, Department and Dean's Office, are legal bodies where the quality of teaching is analyzed and discussed.

The scientific competence of second cycle teaching staff is evaluated on the basis of their publications in scientific journals indexed by Clarivate Analytics Web of Science with citation index, Scopus data, other databases recognized in the scientific world, as well as membership in editorial boards of international and Lithuanian scientific journals; participation in international projects. The competence of the teaching staff for practical education, on the other hand, is determined by their respective activities: membership in technical committees, standards committees, working groups at Lithuanian and international institutions, which prepare standard documents for relevant activities (regulations, standards, recommendations, etc.); possession of certificates related to the field of study; leading/lecturing of training courses for qualification improvement (the training must be approved by state institutions). The data show coherence between the quality of studies and

the high professionalism of the teaching staff working within the study programmes. The institution considers the improvement (refreshing) teaching staff didactic qualification as a very important issue, so the teaching staff having been employed at the university for up to 10 years are recommended to take 40 hours of the education/didactic competence course during the period within the employment in the position, if the employment duration is over 10 years20- hour- course must be taken during the period of the employment in certain position.

Professional development of the employees is based on the legal act "The Description of the Procedure for Continuous Professional Development". This procedure prescribes requirements (depending on individual teaching experience), for improving the professional career through the five-year plans prepared by the Heads of Units. Additionally, according to the Resolution of the VILNIUS TECH Senate, the realization of internship is obligatory for teachers who work for the first term after the PhD degree and occupy at least one academic position.

Participation at various events, taking part in various research projects is supported by the Higher Educational Institution.

The total number of teachers and the number of the teaching staff student ratio for the period from 2017/2018 to 2019/2020, per study programme are presented in the Report (Table 5.1, Table 5.2, and Table 5.3 – Self-Evaluation Report).The number of teaching staff is stable, but the number of students is decreasing. Therefore, the teaching staff student ratio for Civil engineering study programme is also stable and it is in the range from 0,168 in 2017/2018 to 0,176 for 2019/2020.The indicators are similar for second cycle studies.

A reduced number of teachers is noted for 2019/2020, (Construction and Real Estate Management) as a result of reorganization of the study programme in 2018. The number of students is stable, therefore, the ratio between teaching staff and students changes from 0,78 to 0,76 and 0,68 respectively.

When it comes to the Road, Railway and Urban Engineering study programme, a slightly different situation is observed. Namely, the number of teachers and students has decreased, in the past three years, (35% and 27%), and the teaching staff and student's ratio decreased from 0,40 to 0,35.

82% of the teaching staff in the frame of Civil engineering delivering courses within the study field, while this percent is 86% in the Road, Railway and Urban Engineering.

When it comes to the academic title of professors who are involved in delivering study courses, it can be said that the situation is similar in all three BSc study programmes. Namely, for the period of 2020, in the Civil Engineering study programme, 10,6% are professors, 57,5% are associate professors, 31,9% are lecturers and assistants, while in the Construction and Real Estate Management, 13% are professors, 58% are associate professors, 29% are lecturers and assistants. 77% are professors and associate professors, 23% are lecturers and assistants in the Road, Railway and Urban Engineering study programme. As for the second cycle, associate professor is the predominant number among the academic positions in the field.

The average age of the teachers in Civil Engineering is 46. (38, 3% is between 41 and 50 years old, 17% between 51 and 60, 14, 9% are over 60 years old). 56% are between 41 and 50 years old, 16% are between 51 and 60 years old, 5% are over 60 - Construction and Real Estate Management. 40% are between 41 and 50 years old, 13% are between 51 and 60 years old, 13% are over 60. – Road, Railway and Urban Engineering. In the second cycle, middle-aged teaching staff is prevailing in the field.

The analysis regarding the ratio between teachers fewer than 40 and academic staff over 60 indicates the fact that the Institution takes care of the timely renewal of the academic staff. 78% of the teachers in Civil Engineering have a Ph.D. degree, while 81% of academic staff who teach the courses in the field of the study, also have a Ph.D. degree. 84% hold a Ph.D. degree in the Construction and Real Estate Management study programme while this percentage in the Road, Railway and Urban Engineering study programme is 82%.

A high percentage of teachers use the English language at least at B2 level. Moreover, 83% delivering courses in English within the field of study, while 19% use foreign languages even at the C level.

The other two study programmes are carried out only in Lithuanian language. However, teachers speak and use English for teaching and other foreign languages.

In the second cycle, two study programmes are taught in English and two others are taught in English and Lithuanian. So, the conclusion is that the teaching staff has the appropriate level of English language proficiency. Still, the teaching staff is provided with an opportunity to improve the knowledge of English.

(2) Expert judgement/indicator analysis

The analysis of the SERs, their annexes, as well as the impressions from the realized visit, lead to the conclusion that the number of teachers, the priority research areas, qualifications (as a basic and mandatory prerequisite for employment), competencies and experiences are in line with the intended learning outcomes in the frame of various study subjects. In addition, Faculty Study Committee, Department and Dean's Office, are University structures responsible for quality assurance of teaching process.

Competencies for the practical side of education are valued on the basis of above-mentioned appropriate indicators. In addition, refreshing the didactic competencies is recommended (Duration of the course depends on the years of working at the University).

The University recognizes the importance of scientific competencies in successfully delivering the courses in the second cycle study programmes. Therefore, special attention is paid to the number of articles in scientific journals indexed in various databases, participation in international scientific projects and memberships in editorial boards of national and international scientific journals.

Concocted approach (five-year plans) and legal regulation (Description of the Procedure for Continuous Professional Development, Resolution of the VILNIUS TECH Senate), are the attributes of the continuous improvement of professional career.

One of the features of the analyzed study field in the previous three years is a stable number of teachers and declining number of students. Therefore, the teaching staff ratio is quite stable, but it's obvious that the decrease in the number of technical sciences students remains an important issue for countries with similar socio-political and demographic characteristics.

The percentage of different academic titles (professors, associate professors, lectures, assistants), as well as number of teachers with PhD degree is similar within different study programmes of first study cycle. On the other hand, the academic title of associate professors is dominant in the second study cycle. Middle-aged teachers prevail in first and second cycle study programmes.

English language proficiency level of teachers is high (about B2), which is a good base for successfully delivering the study courses on programmes carried out in English language (The Civil Engineering study programme - first study cycle, as well as two study programmes on second cycle are delivered in English). Therefore, taking the measures for improving the English language of teachers should be emphasized and praised.

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

The University encourages academic staff mobility through legal procedures amended by the Senate. Namely, the Description of the Procedure for Remuneration of Academic Staff provides allocation of additional points to the variable part of the academic staff salary, for realization of various activities abroad, such as: guest lectures, teaching visits, working at higher education institutions or research centres.

VILNIUS TECH International Relations Office is responsible for promoting the academic staff mobility and international cooperation (inter-institutional or bilateral cooperation agreements with institutions in 30 Erasmus + programme countries in Europe and in 33 non-EU Erasmus +partner countries are signed). The realization of mobility is approved on the basis of the list of teachers who applied, considering: teacher's contribution towards higher level of cooperation between institutions (return visit, mutual projects, organized traineeship vacancies for students), required knowledge of English language and its application for lectures, the participation in mobility so far.

The analysis of the number of outgoing and incoming mobilities per study programme (2017 – 2020) indicates that it depends on the type of programme. Nevertheless, it was quite stable in the period before the pandemic. Drastic decline in the number of outgoing and incoming teaching staff is observed in the period from 2019 to 2020 (Table 5.7, 5.8 and 5.9 – SER Nine international Erasmus+ academic projects and eight international projects (HORIZON2020,

COST), have been worked on in the past three years (Annex 6 and Annex 7– Self Evaluation Report).

As a partner in the Erasmus+ project named as "Partners4Value", the University supports participation of the University staff in undertaking internships in companies and organizations in the EU. Moreover, there is an opportunity for companies' representatives to give lectures to the students in the frame of the Higher Education Institution.

Additionally, since long-term teaching visits of foreign professors are partly financed by the Ministry of Education, Science and Sport project "Support of foreign academic staff for teaching visits in Lithuania", the university employed professors from the UK and Latvia for second cycle programmes.

As the pandemic influences the in/outbound visits, the presented data cannot be considered relevant for drawing conclusions. Yet, 2017-2018 and 2018-2019 data show good and stable figures on this matter.

(2) Expert judgement/indicator analysis

Based on the SERs, and part of the University website related to the internationalisation, Vilnius Gediminas Technical University | VILNIUS TECH, one of the goals of the VILNIUS TECH International Relations Office is promotion of the values of the Erasmus+ programme, oriented towards (among other things), providing support for mobility of academic staff through initiation, preparation and evaluation of agreements with universities and businesses in and outside EU. The mentioned can be derived from the number of signed agreements with international universities and realized mobilities (Annexes of the Reports).

The expert team is pleased to note that the University assists the teachers in mobility realization through additional financial support - Description of the Procedure for Remuneration of Academic Staff (This is in line with the recommendation of the previous evaluation). Moreover, there are clear criteria for mobility approval. In the terms of Erasmus+ project, the opportunity for realization the internships in companies in the EU, as well as involving the practitioners in the process of delivering lectures to the students (Project "Partners4Value") should be emphasized.

The opportunities for mobility are not limited to the Erasmus+ programme. Namely, as a result of participation in the project "Support of foreign academic staff for teaching visits in Lithuania", the Institution employed foreign professors for realization of second cycle study programmes. (This is also directed towards fulfilling the recommendation from the previous evaluation).

Bearing in mind the contents of the SERs and discussions during the visit, the team has no doubt that the University is making efforts for the creation of conditions for ensuring academic mobility. However, in order to further mobility strengthening, developing joint study programmes is recommended (This was the recommendation of the previous evaluation team, which, in our opinion, is not fully met).

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

(1) Factual situation

The number of published research papers, participation in international projects, as well as individual professional development through training courses and internships are the main criteria that apply for assessment of the teaching staff competences. Additionally, the level of English language proficiency is improved through English language courses organised by the University (half of their price is covered by the Institution), participation in international projects and publishing research papers in international scientific journals.

University legal acts regulate the improvement and assessment of teacher's scientific, professional and didactic competences.

Description of the Procedure for Organisation of Competitions for Teacher, Researcher and Research Fellow Positions, Procedure for Attestation and Setting Minimum Qualification Requirements are procedures oriented towards periodical assessment of teacher's scientific competencies.

The Vilnius Gediminas Technical University Description of the Staff Internship Procedure is used for strengthening the professional competencies of teachers who do not have practical and management experience. Applications are carried out on individual or University requests. Additionally, teachers who are, at least, on one academic position, and who work for the first term after the doctoral degree, shall take an internship in the first three years of employment. Other teachers and representatives of the administration staff also have the opportunity to develop their professional skills through internship, bearing in mind the available funding. Seminars organized by social partners are other forms used to improve the practical knowledge and skills of teachers (Participation in 16 seminars in the period from 2017 to 2020 is noted).

Various ways to improve the didactic competencies of teaching staff have been put in place. (Courses, seminars, individual consultations, methodological materials are available on e-platform). Practical assignment is a part of seminars which are organized by the Group of Educational Competencies of the Academic Support Centre, on the base of a schedule published on the website every six months (In the period from 2017 to 2020, 87% of the teaching staff who are involved in the Civil Engineering study programme, participated in seminars). There is a possibility for obtaining the training certificate not only in the frame of the University, but also in other institutions in the country or abroad. In such a case, the certificate is submitted to the above-mentioned group in order to obtain its verification by the Commission established by the Rector. It's important to emphasize that the development of these competencies is linked to the attestation procedure (The Description of the Procedure for Further Qualification Development of Vilnius Gediminas Technical University staff).

(2) Expert judgement/indicator analysis

In addition to the regularly applied criteria for assessment of competences (number of published research papers, participation in international projects, training courses,

internships, seminars), there is an Institutional legal base for ongoing improvement of various teacher's competences, such as:

- Description of the Procedure for Organisation of Competitions for Teacher, Researcher and Research Fellow Positions,
- Procedure for Attestation and Setting Minimum Qualification Requirements,
- Vilnius Gediminas Technical University Description of the Staff Internship Procedure (for teachers who do not have practical and management experience),
- Description of the Procedure for Further Qualification Development of Vilnius Gediminas Technical University staff (the level of educational competencies is a subject of attestation procedure).

Group of Educational Competencies of the Academic Support Centre is a University structure which is in charge of the organization of seminars for didactic competencies development (as a practical realization of the recommendation in the frame of previous evaluation). The percentage of teachers who attended these seminars is significant (87% in the period from 2017 until 2020).

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Continuous improvement of professional, teaching-educational and scientific-research competences.

2. Different forms for continuous improvement of teachers' competencies are put in place.

(2) Weaknesses:

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3.6. LEARNING FACILITIES AND RESOURSES

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

The university ensures a sufficient number of rooms for lectures, seminars and laboratory works, technical and hygienic conditions of the premises for studies. All premises where the education process is organised meet the requirements of labour safety and hygiene standards. All the lecture rooms are equipped with computer and video equipment; the computers are connected to the common VILNIUS TECH internet network. The interior of the rooms is timely refreshed.

Laboratory work is carried out in the following laboratories: training laboratories (chemistry; engineering geology; soil mechanics; physics; materials science); research laboratories (material resistance; strength mechanics); laboratories owned by the Civil Engineering Faculty (building structures and geotechnics; applied laboratory of buildings, constructions and materials, laboratory of structural models), laboratories owned by the Department of Roads (roads laboratory, road and railway construction materials training laboratory, urban transport traffic laboratory). Students of the Road, Railway and Urban Engineering study programme have the opportunity to work in an accredited road research laboratory owned by the VILNIUS TECH Road Research Institute. Most laboratory facilities are currently being refurbished. The provision of laboratories with the necessary equipment and materials depends on the number of students. Equipment is regularly updated following public procurement plans. Laboratory equipment of the Department of Roads at the Faculty of Environmental Engineering and the Faculty of Environmental Engineering is used in the study programmes within the Civil Engineering field. A detailed list of the available equipment per laboratory is presented in Annex 14.

There are over 2,000 workstation computers at the University, about 1,050 – in computer classes and reading rooms. About 2,100 computers are allocated for study and research purposes, including laptops and tablets used by the teaching staff. Computer classes and other auditoriums are equipped with computer workstations with video projectors for the teaching staff to use. The University has updated 210 (26.2%) computer workstations in computer classes. Seven computer rooms are equipped for studies in the Civil Engineering field. The capacity is between 16 and 25 places per room. A variety of software is used in the study process (over 200 titles). The software is installed in computer found in classrooms, reading rooms and is available to teaching staff and students through the university cloud service from home computers. A detailed list of software is available for use and is presented in Annex 8.

VILNIUS TECH Library provides the university community with information and publications. Access to the library is a priority for members of the university community, as well as for teaching staff and students of other higher and high technical schools. The reader finds information about the publications in a computer directory of the library. One can search the electronic catalogue and order the needed publications online or on the computers in the Customer Service Department. In response to the growing academic needs and the changing environment, it seeks to help in the search for scientific information by properly directing the information resources available at the university and beyond.

VILNIUS TECH Library has a common reading room and a special reading room 24/7, active learning space, and working areas. The reading rooms of the Central Library are located on the University Campus, making them popular and widely visited. Readers can work in a pleasant environment, convenient working hours, and a 24/7 Internet reading room has been opened. There are 63 computerised workspaces for readers.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that facilities, infrastructure, laboratories and libraries are sufficiently equipped to support the needs of students and staff.

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

(1) Factual situation

The faculty budget consists of state funding and own funds. The faculty funds are distributed each year in accordance with the procedure approved by the Rector of VILNIUS TECH and are divided into two main programs: 1) Programme for the Study Process Support and Development and 2) Programme for the Research and Technology Development and PhD. The faculty develops annual budget plans for each of the abovementioned programs. Faculty funds are allocated to acquire long-term tangible assets, repair of premises, maintenance, and repair of equipment, etc.

Faculties take care of the outdated equipment upgrade therefore plan an annual budget for such activities. University and Faculty funds are used for the update of computers, multimedia, and some laboratory equipment. Meanwhile, the purchase of some new equipment is funded by ongoing international projects. Stakeholders also provide support.

(2) Expert judgement/indicator analysis

The expert panel acknowledges that there is a plan for maintaining and updating the resources needed for academic and research activities.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The facilities and infrastructure of the university are very satisfactory.

2. The laboratories are well equipped and support the demands of the various study fields.

3. The classrooms seem comfortable and well equipped.

4. The students have access to the laboratories, and they use them in both learning activities and their research thesis.

5. The library is well organized, and students have continuous access to it.

6. There is a plan for maintenance and upgrading of the equipment and facilities

(2) Weaknesses:

1. No real weaknesses were identified. One can point out though that there is always a financial shortage for purchasing new equipment.

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

As stated in the SERs, the quality assurance (hereafter - QA) and decision-making bodies at the University are:

- the University Study Committee,
- the Rectorate and the Senate,
- the Study Programme Committee,
- the Faculty Study Committee and
- Faculty Council.

Civil Engineering is monitored and managed by the Programme Committee. The Committee is composed of the Chairman, the teaching staff of the Department, social partners and students' representatives, where it reports to the Dean of the Faculty. The Study Programme Committee and Faculty Study Committee are responsible for monitoring the quality of the study programmes.

The documents that provide a detailed description of the study programme management processes are the following:

- VILNIUS TECH Statute,
- VILNIUS TECH General Faculty Regulations,
- VILNIUS TECH General Faculty Council Regulations,
- VILNIUS TECH Study Regulations,
- VILNIUS TECH Study Committee Regulations,
- VILNIUS TECH Study Programme Committee Regulations.

The internal self-evaluation is implemented through the following processes:

- Prepares, approves, monitors, evaluates study programmes and provides methodological assistance (General Principles for the Establishment and Implementation of Study Programmes of VILNIUS TECH);
- Systematically assesses student performance (Procedure Description for Student Performance Assessment and Earning Credits at VILNIUS TECH);

- Description of the Procedure for Recognition of Achieved Learning Outcomes; Description of Procedures for Resolving Student Appeals and Complaints at VILNIUS TECH);
- Provides the teaching staff with opportunities to further develop their educational competencies (Description of the Procedure for Qualification Development of VILNIUS TECH staff);
- Ensures study resources and academic, cultural, and social support for students (Students' Affairs Unit in the Academic Affairs Office, VILNIUS TECH Students' Representation, Library, Aesthetic Education Centre, Sports and Tourism Club "Engineering", The Club of Young Road Engineers „Kelelis");
- Provides career planning services to students (Career and Psychological Counselling Group);
- Supports students' involvement in study quality assurance (i.e., involvement of students in University governing bodies, Study Committees, Study Programme Committees, etc.).

Numerous legal documents, orders and resolutions include or describe QA related processes. Internal evaluation and improvement of courses within the study programme are regularly organised.

In addition to the above, Study Programme Committees are responsible for the development of new study programmes or update existing ones. It is also stated that since 2019, the University document management system stores the most important administration records, such as Rector's orders and other internal documents.

During the visit, the evaluation team requested to meet with the QA officer. A new QA officer is now overtaking QA operations. The old and new QA officers were found to be knowledgeable. The evaluation team requested from the QA officers to provide some additional information on QA procedures, which they did (including examples of audit and planning on how to alleviate problems and deficiencies). The QA unit does not handle all data from the study programmes as the QA officers stated during the interview.

(2) Expert judgement/indicator analysis

It was evident that the VILNIUS TECH has a QA system in place, where the internal self-evaluation is periodically performed. Furthermore, the procedures of allocating potential problems and proposing remedial actions and then implementing them is performed according to the QA standards that the university has established. This is an indicator of good practice.

It was noted that the study programmes have improved since the last visit of the external evaluation team, which is evidence of the effectiveness of the internal self-evaluation procedure that is practiced at VILNIUS TECH.

The QA unit is not responsible for handling all the data from the study programmes, but only monitors the strategic KPIs. It is recommended to hire one more QA officer in order to help the existing QA unit undertake the full spectrum of audits that will foresee their involvement with the study programme related data. The QA unit is the third eye that any university would like to have internally that will be able to report directly to the senior administration of any findings, thus recommend improvements that the study fields fail to allocate. To do so, the QA unit needs to be able to handle all data collected from the study programmes therefore a sufficient number of QA officers is needed.

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

(1) Factual situation

Based on the SER and provided surveys sent to companies, stakeholders contribute to the continuous development and improvement of the study programmes. The feedback received from stakeholders is presented to the Rector and the Dean. The results that were presented to the evaluation team consist of a variety of questions related to the competencies of the graduates. Even though the results are presented through diagrams, a relevant discussion on the meaning of the results was not provided.

Students are also involved in the evaluation procedure through undertaking relevant surveys. The evaluation team was pleased to see the relevant results, but an analysis of the obtained feedback was not found within the corresponding annex (discussion on the results and their meaning).

Furthermore, the University has a teaching staff survey that is used to obtain the teachers' feedback in relation to the improvement of the study programmes.

(2) Expert judgement/indicator analysis

The QA procedures foresee the collection of the data from all stakeholders and based on the feedback received modify their study programmes or develop new ones. The very large number of second cycle programmes is a testament to that. The close relationship between social partners and the companies with study programmes and the university was evident. The companies also participate in discussions to improve the programmes. This is an indicator of good practice.

The companies stated that they are extremely satisfied with the way the study programmes' management acknowledges their feedback, while the collaboration between them is very constructive. Given that many companies get their engineers from these study programmes, stating that the level of the graduates is high level, the evaluation team was able to verify that the stakeholders (students, social partners and companies) are involved in the internal quality procedure. Companies are also actively involved in the purchasing of materials for tests performed by students, while their connection with the study programme students is done in a direct manner at an early stage. This is also an indicator of good practice.

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

(1) Factual situation

The publication of information takes place through the use of the University's website and intranet. The website is available to all stakeholders. Faculty members and higher management have the ability to use the information system (is.vgtu.lt) that allows them to review and modify study plans and course cards.

Other subsystems are in place, that help in storing and reviewing different statistical data related to students and courses. Finally, as reported within the SER, University Information System (is.vgtu.lt) facilitates the study programmes implementation and the management of study-related information.

(2) Expert judgement/indicator analysis

There is a functioning system in place through which the collection, use and publication of data on studies is performed. The evaluation and improvement processes were provided by the QA unit, but referred to KPIs at the university level and not the study programmes. The QA unit should be able to receive and assess all data related to study programmes in an attempt to allocate improvements that might escape the study programmes. For example, the teachers from different study programmes stated that there are cases where the same course is taught in two different study programmes by two different teachers. From a KPI point of view, this can be considered as a waste of resources in terms of teaching hours. If this type of information does not reach the QA unit, then the study programmes will not be able to receive improvement recommendations that will help them optimize their resource distribution and allocation.

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

According to the SER the strengths of the QA procedure that relates to the evaluation of the opinion of the field students is summarised as:

"Study quality management is sufficiently regulated, and the study programme evaluation process is public. The social partners' and students' feedback on the quality of studies has a great value and is discussed in the meetings of the Study Programme Committees and the Department. The involvement of social partners in the study process and active participation of Study Committee members in branch associations and committees ensures a timely response to everchanging labour market needs."

On the other hand, the area of improvement is reported as follows:

"Mandatory students' surveys organised at the University before 2019 did not ensure adequate feedback. Therefore, there is a need to explore other approaches and find solutions that would motivate students to complete surveys voluntarily."

The results are presented in Table 7.1 of the SER, but the analysis of the students' feedback was not provided.

(2) Expert judgement/indicator analysis

The evaluation team was pleased to interact with students and company representatives, who verified their active involvement in the QA procedure of evaluating the level of studies at their study programmes. The evaluation team did not receive any analysis of the students' feedback. This is another indication that the QA unit should be directly involved in this procedure and not only have the role of monitoring the strategic KPIs of the university.

Interviewing first cycle field students showed that their opinion in relation to their studies was high. Furthermore, the interview with the first cycle field students revealed that there was a case of a teacher that had 10-year-old notes and was teaching them material that was even obsolete. The field students proceeded with a complaint about this teacher and the situation they found themselves in, but the department did not act to remedy the situation. This is also a strong indication that the QA procedures and the way they are currently being implemented require to be improved at the study programme level.

Finally, the second cycle students stated that they were proud to be a part of the university and that they had a great relationship with their teachers. This is an indicator of good practice. There was a student that indicated that the management of the study field by two faculties was not ideal. If a student is registered at a smaller faculty then they might feel that they are left out. After switching to the bigger faculty, the student felt that he did not need surveys since his teachers asked the students directly what was needed to be improved. This is an indication of good practice from this faculty.

It is recommended to advise students to submit their complaints directly to the QA unit through a relevant form or online submission system (online form or email), after the university proceeds with the increasing of the number of QA officers. The students should be advised to always inform the QA unit about any issue they might face after communicating with their teachers and HoD. This will create a mechanism that will allow complaints to directly reach the management and not allow them to be buried under the carpet. If these mechanisms are not in place, first cycle students will continue to feel trapped in this type of situations.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. There is a QA system in place that is being implemented by an independent QA unit.

2. Field students have a high opinion on the quality of their studies.

(2) Weaknesses:

1. The QA unit does not have access to all data related to the study programmes.

2. First cycle students' complaints are not handled adequately since the QA unit is not actively involved in this procedure.

IV. EXAMPLES OF EXCELLENCE

The offering of state-of-the-art programmes through the Civil Engineering Department was found to be impressive. It is not only difficult and challenging to allocate new areas where new programmes can be developed, but offering the new programmes successfully, thus training new engineers that are integrated with the latest knowledge is very demanding. The VILNIUS TECH has been found to be able to manage this very complicated task successfully.

V. RECOMMENDATIONS*

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	Reduce the unnecessarily high number of programmes and specialisations, assessing effectiveness and sustainability of the organisation of studies. Reduce differences in the structure of individual programmes, unify the possibilities of personalising studies and standardise the learning outcomes of the subjects of the same name and content.
Links between science (art) and studies	The number of students participating in international agreements, especially through the Erasmus program, must be improved.
Student admission and support	Expand short-term mobility opportunities for first- and second-cycle students. Cooperating with social partners, students, and other stakeholders, discuss the sustainability of study programmes with low admissions rates. Devise a study marketing plan (encompassing a broad period of time, not only the period of admissions) and you may also survey students (4th year) to grasp the general mood of preparedness for studies in the second-cycle.
Teaching and learning, student performance and graduate employment	The practical training needs reorganization, the employers should be more involved in its realization and searching for real cases' solutions.
Teaching staff	Create additional incentives (i.e., money paid to each teacher for each WOS publication) to push faculty to further improve their research output. Evaluate the course material of each teacher and make sure the latest knowledge is taught in classes.
Learning facilities and resources	Continue improving the laboratories and learning facilities.
Study quality management and public information	Involve the QA unit further and allow the analysis of the information recorded at the programme level by the QA unit. This will allow a third party to have access to programme related data. Also, the students should be able to submit their complaints to the QA unit directly.

*If the study field is going to be given negative evaluation (non-accreditation) instead of RECOMMENDATIONS main **arguments for negative evaluation** (non-accreditation) must be provided together with a **list of "must do" actions** in order to assure that students admitted before study field's non-accreditation will gain knowledge and skills at least on minimum level.

VI. SUMMARY

Main positive and negative quality aspects of each evaluation area of the study field of Civil Engineering at Vilnius Gediminas Technical University:

The visit at the VILNIUS TECH revealed that the faculty is doing a good job at maintaining high teaching and research standards. There is always room for improvement, especially in the way the QA procedures are implemented and how the content of courses is evaluated, as discussed in this evaluation report.

The University should further the development of QA culture at all levels, while the issue of student registration in the near and long run future should be discussed in detail. The development of new programmes can become a double blade knife that might negatively affect the performance of the Civil Engineering department. For this purpose, a sustainability plan should be in place.

Expert panel signatures:

Assoc. Prof. dr. George Markou, (panel chairperson), academic