CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD of CIVIL ENGINEERING

at KAUNAS UNIVERSITY of TECHNOLOGY

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. **Dr. Mindaugas Gikys,** *representative of social partners;*
6. **Mr. Tomas Bedulskij,** *students' representative*.

Evaluation coordinator – *Jūratė Čergelienė*

Report language – English

Vilnius
2021

Study Field Data*

Title of the study programme	Civil Engineering	Building Services Engineering
State code	6121EX005	6121EX004
Type of studies	University studies	University studies
Cycle of studies	First cycle (undergraduate)	First cycle (undergraduate)
Mode of study and duration (in years)	Full time, 4-year studies Extended, 6-year studies	Full time, 4-year studies
Credit volume	240	240
Qualification degree and (or) professional qualification	Bachelor of Engineering Sciences	Bachelor of Engineering Sciences
Language of instruction	Lithuanian, English	Lithuanian, English
Minimum education required	Secondary education	Secondary education
Registration date of the study programme	19/05/1997	06/03/2006

** 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	Sustainable and Energy Efficient Buildings	Construction Management
State code	6211EX006	6211EX007
Type of studies	University studies	University studies
Cycle of studies	Second cycle	Second cycle
Mode of study and duration (in years)	Full time, 1,5-year studies	Full time, 1,5-year studies
Credit volume	90	90
Qualification degree and (or) professional qualification	Master of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian
Minimum education required	Bachelor's degree or its equivalent	Bachelor's degree or its equivalent
Registration date of the study programme	06/03/2006	14/06/2002

** 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 and Building Products Engineering
State code	6211EX008
Type of studies	University studies
Cycle of studies	Second cycle
Mode of study and duration (in years)	Full time, 1,5-year studies
Credit volume	90
Qualification degree and (or) professional qualification	Master of Engineering Sciences
Language of instruction	Lithuanian, English
Minimum education required	Bachelor's degree or its equivalent
Registration date of the study programme	19/02/2007

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

CONTENTS

I. INTRODUCTION **6**

1.1. BACKGROUND OF THE EVALUATION PROCESS 6

1.2. EXPERT PANEL 6

1.3. GENERAL INFORMATION 7

1.4. BACKGROUND OF STUDY FIELD/STUDY FIELD PLACE AND SIGNIFICANCE IN HEI 7

II. GENERAL ASSESSMENT **9**

III. STUDY FIELD ANALYSIS **11**

3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM 11

3.2. LINKS BETWEEN SCIENCE (ART) AND STUDIES 17

3.3. STUDENT ADMISSION AND SUPPORT 20

3.4. TEACHING AND LEARNING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT 25

3.5. TEACHING STAFF 34

3.6. LEARNING FACILITIES AND RESOURSES 39

3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION 43

IV. EXAMPLES OF EXCELLENCE **48**

V. RECOMMENDATIONS **49**

VI. SUMMARY **50**

I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

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

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

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

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

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

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

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

1.2. EXPERT PANEL

The expert panel was assigned according to the Experts Selection Procedure (hereinafter referred to as the Procedure) as approved by the Director of Centre for Quality Assessment in Higher Education on 31 December 2019 Order No. V-149. The site visit to the HEI was conducted by the panel on *24th 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);*
Dr. Mindaugas Gikys, *Director of JSC "AIF LT";*
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.	2019-2020 M.M RUDENS SEMESTRO MODULIŲ / DĖSTYTOJŲ VERTINIMAS
2.	2019–2020 M.M. PAVASARIO SEMESTRO MODULIŲ / DĖSTYTOJŲ VERTINIMAS
3.	ANNUAL IMPROVEMENT PLAN OF FIELDS' STUDY PROGRAMME COMMITTEE
4.	KTU Quality Assurance Manual
5.	PLAN FOR THE QUALITY IMPROVEMENT IN STUDIES

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

The Kaunas University of Technology (hereafter –KTU, University) was established in 1920 and it has 8,094 students, while it employs more than 2,000 employees. The mission of the University is to provide research-based studies at the international level, create and transfer interdisciplinary knowledge and innovative technologies for the sustainable development of the state and innovation, create an open-minded, creative environment which inspires leaders and talented individuals.

The governing, management and other bodies that operate at the University are:

1. University Council,
2. Senate
3. Research and Innovation
4. Studies
5. Student Affairs
6. Strategic Development and Finances
7. the Rector and his team
8. the Students' Association
9. Internal Audit Office
10. Board of Academic Ethics
11. Equal Opportunities Commission
12. Dispute Commission
13. University Study Quality Committee
14. University Research Strategy Committee
15. Work Council
16. Trade Union
17. Alumni Association

The University has 9 faculties, which are managed by the Deans and their teams, where the departments are managed by each head of department (hereafter - HoD). The study fields and study programmes are coordinated by the Field's Study Programme Committees, which are led by the heads of study programmes.

According to the Self-evaluation report (hereafter – SER), the university prides itself on its research-based study programmes and research-oriented activities. One of its main objectives

is to get international recognition. The KTU also prides on receiving awards in relation to its research activity.

The Faculty of Civil Engineering and Architecture (hereafter - FCEA) and the Panevėžys Faculty of Technologies and Business (hereafter - PFTB) offer Civil Engineering study programmes. Three research groups are active in the FCEA:

- Building Materials,
- Structures and Construction Technologies,
- Sustainable Energy in the Built Environment and Cultural and Spatial Environment.

The study field of Civil Engineering that is assessed herein forms a significant part of the HEI's academic operations that have to do with both teaching and researching. The last study programme evaluation in the field of Civil Engineering was in 2016, where the study programmes were accredited for a maximum period of 6 years.

II. GENERAL ASSESSMENT

Civil Engineering study field and first cycle at Kaunas University of Technology (KTU) 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	4
2.	Links between science (art) and studies	4
3.	Student admission and support	4
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	4
	Total:	27

*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 Kaunas University of Technology 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	4
2.	Links between science (art) and studies	4
3.	Student admission and support	4
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	4
	Total:	27

*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 undergraduate programme Civil Engineering (6121EX005) is aimed at providing knowledge of civil engineering, developing abilities to solve practical problems of civil engineering along with the basics of fundamental, social sciences, humanities and technologies and work in construction and related areas. According to the self-evaluation report, another first cycle programme entitled Building Services Engineering (6121EX004) was terminated on 31.08.2020. The master's programmes aim at providing theoretical knowledge and skills in the fields of sustainable and energy-efficient building construction, maintenance and renovation of buildings by applying different research methods and tools for digitalisation of expert analysis (Sustainable and Energy Efficient Buildings), providing technological and management knowledge and develop abilities of creatively applying the latest knowledge of construction engineering and other science fields for the development of innovative solutions in construction technology and management (Construction Management) and providing special knowledge and competencies required to define and creatively solve atypical scientific and practical problems of the building construction by defining their reliability and functionality, assess and predict the status and behaviour of building materials and structures, plan and carry out research applying appropriate techniques and equipment, prepare construction management and optimisation decisions (Structural and Building Products Engineering). These aims are relevant, adequately considering general objectives of civil engineering and sufficiently addressing also recent developments in the field, in order to provide the best possible knowledge to the graduates of different study cycles.

The relevance of education in the field of civil engineering is well demonstrated by the satisfaction of employers and social partners with the overall quality of graduates. Both the university representatives and social partners are declaring a shortage of specialists of civil engineering in the labour market. This is also evidenced by the very high employment rate of the graduates and early employment of the students. This all convincingly demonstrates that the aims and outcomes of the study programmes conform to the needs of the society and the specialists are very much acknowledged in the labour market. The Faculty of Civil Engineering and Architecture seems to have a great potential in promoting sustainable development and the Faculty's reputation among the social partners and employers is very high.

(2) Expert judgement/indicator analysis

The aims and outcomes of both the first and second cycle programmes are fully conforming the needs of 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 KTU. The Vision of KTU on research and innovation comprises development of knowledge and technologies corresponding to societal needs and their transfer to students, business and public sector. Construction Technologies is one of the priority areas of the university and this is well expressed by maintaining the programmes listed above by the Faculty of Civil Engineering and Architecture. The other priorities of the Strategy, like the modernisation of infrastructure of the University, are supporting the development of the field of civil engineering and the respective changes were also demonstrated during the virtual site visit.

(2) Expert judgement/indicator analysis

The documentation and information gathered at the meetings, high demand for graduates and early student employment form together a sufficient proof that 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 higher education institution.

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 identified in accordance with the European and national legislation, being developed in accordance with the Standards and Guidelines for Accreditation of Engineering Programmes and considering the strategy for the construction sector identified by the European Commission.

The amount of programmes and student's work at KTU is described in credits (ECTS), 1 credit equals 26.67 hours of contact tuition and independent work. It is recommended that the scope of presence work would be 40 percent of the study module hours. The curriculum of the first cycle study programme Civil Engineering comprises 240 credits (conforms the Description of General Requirements for the Provision of Studies, order of Minister of Education and Science of the Republic of Lithuania, 30 December 2016 No. V-1168), (hereafter - GR). It includes the necessary number of basic subjects of engineering, main study field subjects and study field specialisation subjects (24, 93 and 27 credits, respectively; the GR requirement is not less than 120 credits altogether), but also general study subjects (12 credits), subjects of mathematics and physical sciences (30 credits), social sciences (6 credits),

optional subjects (6 credits) and electives (12 credits). Practice amounts to 15 credits (according to GR, not less than 15 credits) and the final project (15 credits – conforms to the GR). Professors are involved in teaching more than 20% of the courses.

The curriculum of the second cycle programmes Sustainable and Energy Efficient Buildings and Structural and Building Products Engineering comprise 90 credits (GR establishes the total amount to be 90 or 120 credits) and include study field subjects and study field electives (48 and 12 credits, respectively; requirement of GR not less than 60 credits) and the final project (30 credits, conforms to the requirements of GR). The curriculum of the second cycle study programme Construction Management has a different proportion of study field subjects and study field electives (54 and 6 credits, respectively) and conforms to the requirements of GR. Professors are involved in teaching more than 20% of the courses.

KTU uses the Relations Matrix for describing and analysing the relations between the learning outcomes and the subjects. The analysis of the matrix is well demonstrating that the objectives of the study programmes are in full accordance with the Description of the Fields of Engineering Studies (Order No V-964 of the Minister of Education and Science of the Republic of Lithuania of 10 September 2015). It is also well demonstrated that the learning outcomes, the volume of the programme in credits and the programme content are the same for both full-time and part-time studies.

(2) Expert judgement/indicator analysis

The results of observations allow the expert panel to conclude that both the first-level and second-level study programmes are in 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 into modules and the programmes are built of modular blocks. Descriptions of the modules include expected learning outcomes and teaching and assessment methods, being clearly tied to the expected learning outcomes. The presented materials show that the achievement of learning outcomes is carefully monitored and evaluated. The use of several evaluation methods seems to be well supported as the source materials are clearly structured. The expected learning outcomes are well justified in accordance with the level of programmes.

The assessment of all subjects is based on a multitude of methods, from monitoring individual progress up to the laboratory examinations and oral and written exams. Written examination is the most common type of final examination and this looks justified, considering the overall number of students. Individual projects are reasonably introduced for different subjects. The module learning outcomes (knowledge, understanding, skills) are evaluated using a ten-point grading system (10 — excellent, 9 — very good, 8 — good, 7 — average, 6 — satisfactory, 5 — weak, 4 — unsatisfactory, 3, 2, 1 — minimum requirements not met) approved by 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). The evaluation scale and achievement levels are properly described and the respective information is available on the KTU web page. The assessment system as a whole is found to be trustworthy and is clearly in line with the clear organisation of the study programmes.

(2) Expert judgement/indicator analysis

The expert panel concludes that compatibility of the aims, learning outcomes as well as teaching/learning and assessment methods is clearly demonstrated.

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, engineering analysis and design, principles of fundamental and applied research, practical skills for solving engineering tasks, but also complementary skills. All these skills are offered in a logically ordered succession of items where the advanced knowledge is built on understanding of basic principles of the field and the graduate level programmes are logically extending the undergraduate studies. The numbers of the first and second level programmes are reasonable and the necessary qualifications are offered through specialisation.

(2) Expert judgement/indicator analysis

The expert panel concludes that all individual subjects have a logical position on the array of increasing competence and this is fully ensuring the consistent development of competences of students.

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

(1) Factual situation

Students have several opportunities for personalising their studies. There is a list of elective subjects in each curriculum (mostly 12 credits but only 6 credits in the MSc programme Construction Management) but the list of electives contains only a limited number of field-related subjects. This is limiting the personalisation options and possibility of individual development. In some graduate programmes, electives are grouped in modules (choice between two modules is offered). The electives are complemented with a wide selection of the topics of graduation papers. Students are allowed and even invited to propose topics related to their practical work in companies. The rules of approval of competences acquired in a variety of settings (work, training, participation in various organizations and groups, volunteering, community service, non-formal and informal learning) as equivalent of the studies is regulated by the Order of Minister of Education and Science of the Republic of Lithuania (2017 April 24 No. V-289) and supported by the Guidelines for the Recognition of Learning Outcomes of KTU. The recognition of learning outcomes acquired via formal learning is free of charge, however, a fee (30 % of the price of the study module) is charged for the

recognition of competencies acquired via non-formal and informal learning (30 % of the price of the study module, to cover the assistance of consultant and assessor). Applications for evaluating non-formal and informal learning results are usually fulfilled but their low number (5-15 applications/year for about 500 students) indicates that very few students are using this opportunity.

Only provisional academic regulation (hereafter - PAR) is available on the KTU website (approved 20.06.2012 by the KTU Senate's regulation V2-S-48). This document specifies certain flexibility in individual study plans allowing the modules specified in the programme to be replaced by related content modules from another study programme of the University or another higher education institution (in coordination with the coordinator of the study programme; PAR 81). Students may combine them with non-degrees or other studies, after being admitted to a study programme (PAR 87). The results of part-time studies at a foreign higher education institution are credited if this school is recognized as corresponding to the type and level of studies, in accordance with the procedure established by the laws of that state (PAR 95). More specific rules or regulations for creating a unique combination of subjects from different curricula or an individual study plan are not available on the website of KTU.

Taking a semester abroad is widely encouraged but rarely used. This is seemingly due to parallel employment that seems to be a must for many students who consider it important for building up a professional career.

(2) Expert judgement/indicator analysis

The expert panel concludes that the programmes offer limited opportunities for students to personalise the structure of their studies according to personal learning objectives and learning outcomes, but the documents do not contain clear references to opportunities of taking courses for developing complementary skills or extend the individual profiles of the students. 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 special Guidelines of KTU for the Preparation and Defence of Final Degree Projects and the faculty's Methodological Requirements for the preparation and Defence of Final Degree Projects. Methodological requirements are presented in Final Degree Projects' Moodle courses.

The topics of graduation projects can be proposed by academic employees of KTU, but also by the social partners and students, in coordination with possible supervisors (employees of KTU).

The lists of topics are created, assessed and approved by the Faculty. All this information is available in the intranet part that is open to students. The theses will be prepared under supervision of the project supervisors and consultants. Special training is provided on citation

requirements, use of information sources, compiling a bibliography, academic writing, language culture, terminology, spelling, punctuation, grammar, etc. The quality of language and possible academic misconduct are verified in the course of the review. The content of final projects is checked on a regular basis, in order to ensure compliance with the field of study and effectiveness of this approach is evident from inspection of the lists of titles of final projects. The degree of complexity of the projects, relevance of the aims and consistency of the results was evaluated for a selection of presented works. The level of quality and complexity of the graduation papers conforms to the level of comparable papers at other universities.

Students who met the evaluation team did not confirm involvement in the research or applied projects carried out by their supervisors.

The reviewers evaluate the project goals and objectives, relevance and originality, review of research on the project topic, research methodology, reliability and validity of results and conclusions and overall compliance of the thesis with formal requirements.

The theses are defended in public meetings of the Qualification Commission that consists of competent scientists of the field, practitioners-professionals and representatives of employers (at least five members, at least one of them from a different institution). The grading system is clearly explained. In the second level studies, the highest grade is possible only if the obtained results have been presented in a conference. The defence meetings are attended also by the students.

The possibility of submitting appeals by students are regulated with the University's Guidelines for the Submission and Processing of the Students' Appeals and Complaints.

(2) Expert judgement/indicator analysis

The expert panel is considering, based on the description of regulations and processes related to graduation, the topics and examples of the final theses, a full compliance of final theses with the field and cycle requirements.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The programmes are fully conforming the needs of society and the labour market.

2. The programmes are in good accordance with the strategy of the higher education institution.

3. Very high compliance with the legal requirements.

4. The compatibility of aims, learning outcomes as well as teaching/learning and assessment methods is clearly demonstrated.

5. The well-structured programmes are fully 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 programmes offer only limited opportunities to personalise the structure of studies, develop complementary skills and broaden individual profiles.

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

Research, development, and innovation (R&D&I) projects and contracts implemented by the Unit scientists and researchers contribute to the country's economic, social and cultural growth and use the latest scientific knowledge and inventions to solve the issues relevant to society. The strong connection between research activities and studies is ensured by the participation of teachers, and students in the research and experimental development, participation of researchers in the study process, transfer of scientific knowledge and research skills in postgraduate study programs, carrying of scientific research services and experimental development projects for business, non-governmental and public sector. The implementation of the first and second cycle studies is related to the results of research activities that are carried out at the faculties. Each year the staff of the Unit is preparing an annual work plan, which includes research, teaching and expert's work activities. The plan is reviewed by the Head of the Unit, if necessary – the plan is changed and adjusted to the objectives of the Unit. After the plan is approved, implementation of the plan is reviewed after a year.

Fifty-two papers were published by the teaching staff, during the period between 2017 and 2020, in peer-reviewed scientific journals. During the same period, they participated in 18 funded Research Projects, most of the COST actions, but also Horizon 2020 and European Regional Development ones. They contributed to six scientific research works-related to the study field subjects, and thirty-nine scientific research services-related to the study field subjects. They also cooperated with external partners in conducting sixteen research activities in the field of study. The remarkable percentage of science projects related to the study field subjects, reaching almost 50 % in all study fields, is worth noting.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that research and teaching staff of Kaunas University of Technology 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 University's main objective is to strengthen its position in both the national and international arenas and to create high value for students, industry, and the public sector. The mission of the academic units implementing the programs is to carry out civil engineering and architecture studies based on research and innovation at the highest international level, to contribute to the achievement of national and region-specific objectives of sustainable development through research and advisory activities to educate highly skilled architects and civil engineers. Research activities at the faculties are mainly carried out in centres and research groups.

The evaluation of the first cycle study programme Civil Engineering shows that the ratio of the research activities-related subjects to the study field subjects varies from 7 to 41%. The number of initiated bachelor's final degree topics ranges from 0 to 14. In the second cycle study programme Sustainable and Energy Efficient Buildings, the ratio of the research activities-related subjects to the study field subjects varies from 0 to 40%, and the number of initiated master's final degree topics ranges from 0 to 9; in the second cycle study programme Structural and Building Products Engineering, varies from 40 to 60% and from 6 to 16 respectively; and in the second cycle study programme Construction Management, varies from 15 to 54% and from 1 to 16 respectively. Based on the information provided, it can be stated that the research activities carried out are related to the ongoing studies in the field through their integration into study subjects and final degree projects topics. Sufficient connection of study subjects with the content of individual study programmes and a considerable choice of final degree project topics ensures that students acquire the necessary theoretical knowledge and practical skills.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that research and teaching staff of KTU were involved in R&D activities, introduce the results of their research to the study program, and also the fact that the management of the university is committed in this direction.

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 KTU students have the opportunity to get involved in research activities through research mentoring programs, doing research work for the final theses (first and second cycle) and presenting results at scientific conferences or publishing scientific papers.

The "Technorama" event (https://technorama.ktu.edu/) hosts an exhibition of young scientists' inventions and gives the possibility to meet innovators, to evaluate their ideas and

products. Authors of the most innovative works with the highest commercial potential are awarded special prizes. In 2017, two students of FCEA presented their work "Construction mix for 3D printer".

In 2021, to increase the involvement of master students in research activities, the study programs committee decided that to get the evaluation of 9 or 10 for the Final Degree Project, students have to present their research results in scientific conferences or prepare scientific publications. First cycle students' participation though still remains at very low levels.

It must be noted, that during the analysed period, first or second cycle students did not participate in research projects.

(2) Expert judgement/indicator analysis

The expert panel acknowledges the fact that KTU students are not only given the opportunity to get involved in research activities, but they are also strongly encouraged to do so. This is more evident, as expected, with second cycle students due to their level of expertise (varies from 10 to more than 50%). First cycle students' involvement in scientific activities is still very low (0.27%).

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The members of the staff are highly qualified and involved in several research projects in various scientific fields, providing the opportunity to students to gain from their experience.

2. Students are offered the opportunity to participate in research projects.

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

(2) Weaknesses:

1. Most students are not willing or are not available to travel abroad and gain from international agreements and opportunities

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

The process of admissions is similar to other Lithuanian HEIs. For the first cycle studies, Lithuanian citizens or those who have the right to apply for state-funded places (foreign Lithuanians, citizens of other EU member states, etc.) enroll into studies via the centralized LAMA BPO system. As for the second cycle of studies, admissions are organized institutionally and entrants who are eligible for the state-funded places, must meet minimum and programme specific requirements according to their graduate BSc studies. The possibility of additional studies (up to 30 ECTS credits for university graduates and up to 45 ECTS credits for college graduates) is also present and clearly described in the university's website.

The intake of students for all study programmes is quite good, but the changing demographics of Lithuania tends to indicate a general decrease of students. When it comes to foreign students, the situation with *Civil Engineering* (BSc) shows moderate growth, while the intake for MSc students in *Structural and Building Products Engineering* is fluctuating.

As for the foreign citizens who are not eligible for state-funded places and are willing to study in English, there are two study programmes – *Civil Engineering* (BSc) and *Structural and Building Products Engineering* (MSc). The admissions are organized institutionally on the „DreamApply" platform. The KTU website provides valuable information for these admissions as well as the process of application for the visas and FAQ section. The usage of „DreamApply" platform maintains user-friendly experience with additional information and opportunity to receive timely feedback on application procedures.

(2) Expert judgement/indicator analysis

Admissions to the first-cycle studies are conducted efficiently. The entrants can get all the needed information on KTU web pages. As for the second-cycle studies, it is commendable to have minimum requirements which secures the admissions only for students who graduated specific study fields (with inclusion of additional studies when needed). Although foreign entrants access pivotal information regarding admissions, it seems that KTU lacks public information in English about additional studies – SER states that entrants to *Structural and Building Products Engineering* (MSc) may require additional studies (up to 30 ECTS credits), but there is no comprehensive public information about it, compared to Lithuanian version of sites. Also, as foreign entrants may have country-specific requirements for admissions documents, it is recommended to have this information publicly accessible and constantly updated.

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

KTU applies several internal and national regulations during the recognition of foreign qualifications (in this case – if needed, the university cooperates with the Study Quality and Assessment Center), partial studies and prior non-formal and informal learning competences. As for the partial studies, the procedures are clearly depicted in both Lithuanian and English versions of KTU website. First-cycle students can apply for part time studies if they have no academic debts and the average of their total grades is not lower than 7,5. The same applies to the second-cycle students except for the academic debt fact – according to the information on the web page, only a minimum average grade of 7,5 is required (in the requirement for academic achievements). Other requirements include English proficiency (at least B2), compatibility of study programme with a partner institution and assessment of motivation.

Non-formal and informal learning competencies are assessed individually – an entrant is required to contact the person responsible for this process in each faculty. The assessment process is then conducted according to four steps – providing information; consultations; assessment; recognition.

The SER illustrates numerical data on credits taken into account from: part-time studies; admission into higher course; non-formal and informal learning. It is quite peculiar to have statistics not on individual numerical cases, but the total of credits earned for each category and this makes the assessment of the processes a bit harder. The experts' group after the interviews was provided with additional information, regarding numerical data on applications to acquire non-formal and informal learning – during the period 2017–2020, all 26 applications were fulfilled.

(2) Expert judgement/indicator analysis

KTU applies its procedures on the acknowledgement of non-formal and informal learning competencies, which shows that this practice exists not only in theory, but also in reality. This is definitely a positive aspect and it has to be continued further.

As for the requirements for partial studies, having a minimum average grade is equivocal practice. On the one hand, it motivates students to get higher grades in order to gain a chance for the mobility experience, but on the other hand, this requirement creates a barrier for increasing the mobility of studies. This practice should be re-evaluated – a minimum average grade could be necessary only if the partner institution has a requirement for this. If a foreign institution does not have such a requirement, grades would be relevant in case of internal competition whatsoever. Moreover, although the influence of academic debt on second-cycle students' mobility is not indicated on the web page, according to the "Guidelines for the Organisation of Partial Studies under the "Erasmus+" Programme and Bilateral Cooperation Agreements at Kaunas University of Technology", students who have academic debts cannot leave for partial studies abroad and this rule is applied to both – the first-cycle and the

second-cycle students. The information on the web page should be updated, because the current one is a little misleading.

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

(1) Factual situation

KTU has a strong informational environment related to academic mobility – information about the opportunities is provided periodically in newsletters for students, informational events about mobility, bulletin boards, letters from Students' Union and so on. Each faculty has mobility coordinators who can consult students about opportunities when needed. As interviews with the students revealed, students receive this information and know where they can get additional help in relation to mobility.

The KTU website also has various information regarding mobility. The list of partner institutions is periodically updated and is available publicly as an "Excel" document. Financial support (KTU mobility scholarships, state scholarships, financial support for students with special needs) for student mobility is also present. KTU provides students with an opportunity to gain international internship experience, in some cases up to one year (with the permission of the Vice-Rector for Studies).

(2) Expert judgement/indicator analysis

Theoretically speaking, it can be said that KTU has a strong interest in boosting the mobility rates. The information about mobility is sufficient, students can get various financial support as well as consultations, which is a good sign. But in reality, mobility rates for *Civil Engineering* field students is very low – the period 2017–2020 indicated an average of 2,7%. Interviews with BSc students as well as the administration suggested that students are not willing to leave because they do not want to miss out on courses in Lithuania. But interviews with MSc students revealed that most of them would try to gain mobility experience if they were to study in the BSc again. This may indicate an uneven strategy for internationalization of studies at the central level and its application on faculty-level. It may be beneficial to survey BSc students and identify the main reasons they do not want to apply for exchange.

Moreover, the partner university list should be accessible on a separate section in the web page and not in an "Excel" document. That section should have filtering options according to the study fields. By analyzing potential partner universities for students who are studying in the field of *Civil Engineering*, the list of universities is quite restricted – a bit less than a half of them have limited selection of courses or courses in languages other than English. Also, most of the partner universities are directed towards MSc, although mobility of MSc students is lower than BSc students – thus, more mobility opportunities for BSc students should be created to increase their mobility.

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

KTU has launched two academic support programmes – "GUIDed" Mentorship programme and "GIFTed" Talent Academy. The first programme focuses on mentorship between students and specialists-mentors who are freely chosen by student's needs. Since 2017, 41 students in the field of *Civil Engineering* participated in this programme. This programme has three types of mentors – peer mentor, academic mentor and a tutor. The next programme targets talented KTU students who wish to improve themselves in research and business areas. The SER does not provide data on how many students in the field participated in this programme. Other means of academic support include bridging courses of individual learning for strengthening skills in STEM subjects and English language, as well as traditional methods of individual consultations provided by lecturers who have their consultation hours assigned.

Financial and social support is also diverse – KTU has incentive scholarships (KTU talent scholarship, nominal scholarships, one-off incentive scholarships), financial support for research activities, tuition waivers, reduced fees for accommodation and targeted payments for the students with special needs. KTU website has clearly defined information about each of the aforementioned financial and social support means in Lithuanian and in English. The SER provides the number of total scholarships provided to students of the Faculty of Civil Engineering and Architecture in the period 2017–2020. Students can also spend their leisure time involved in various student organisations, clubs (there is also an engineering club) or have physical activity participating in KTU Sports and Wellness Centre. The SER provides information that in the period 2017–2020 there was one student with special needs and the university is adapted to receive such students (adapting its infrastructure, providing counselling, etc.).

KTU provides free psychological support and has 2 psychologists who work at KTU Student Information and Service Centre. Spiritual support by a chaplain is also present. Students who fall ill or have an accident can apply to the clinic "InMedica" for free of charge.

(2) Expert judgement/indicator analysis

KTU should be praised for the quite successful implementation of the „GUIDed" mentorship programme which is diverse and adaptable to students' needs. Other methods for academic support look attractive, but there is no information provided on how many students used these opportunities. Nevertheless, a strong academic counselling system is evident, but it provides rather an institutional point of view – the SER lacks information about students' opinion on these services. It is recommended to analyse methods of academic counseling to ensure its quality, because KTU has promising resources, so they should be monitored and updated if needed.

Financial support is also sufficient, but it is interesting to see that in the period 2017–2020 only 9 out of 93 scholarships ("University Talent" and "GIFTed") were provided to second-cycle students from the *Civil Engineering* study field. It is natural to have lower numbers in

relation to a lesser total number of students in the second-cycle, but such a big disparity could be addressed more thoroughly.

The opportunity to receive psychological consultations for free is exemplary and has to be continued, but as there are only 2 psychologists, it needs to be evaluated, whether the number of working psychologists is adequate and should not be increased. Also, free health services (in the clinic of "InMedica") is a unique asset which also has to be continued.

3.3.5 Evaluation of the sufficiency of study information and student counselling

(1) Factual situation

Students get information related to their studies via these mediums: e-mail, "Welcome Week", round-table discussions with the administration of the faculty, peer mentors, BSc subject "Introduction to Civil Engineering", consultations with lecturers, and student intranet. Although the "Welcome Week" is oriented toward BSc first-year students, first-year students of both cycles receive a peer mentor who helps with their social-academic integration. Moreover, selected students can become Study@KTU Ambassadors – this entitles them to intercultural communication and spreading a positive information environment about KTU which may boost admissions' rates as well as the general image of KTU in global society.

(2) Expert judgement/indicator analysis

The analysis of the SER as well as KTU websites indicate that students are able to get the needed information about their studies – this is also confirmed by the students during interviews with them. Periodical round-table discussions among the faculty staff and students is a prospective aspect which may act as an additional forum for students' representation as well as receiving information related to changes made in study programmes. This practice has to be continued and spread among students – they have to be encouraged to actively participate in such events.

The "Welcome Week" is a good method to holistically introduce students to KTU – it acts as an additional tool for students' integration, but second-cycle students, who graduated from other HEIs, should also be invited to participate. Nevertheless, it is very good that peer mentors are assigned not only to BSc, but also to MSc students. Nevertheless, their performance should be periodically assessed and identified problems that have to be addressed when new peer mentors are selected.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. International students can access valuable public information as well as the FAQ section regarding the admissions process, getting visas and answers to basic questions regarding student life in Lithuania.

2. Differentiated and logical minimum requirements for entrants to second-cycle studies.

3. KTU implements recognition of non-formal and informal learning not only in theory, but also in practice – the process is clearly defined, convenient and students know about this possibility.

4. Students are well-informed about their study opportunities, the practice of regular newsletters as well as other means of conveying the information is decent.

5. KTU has strong academic support systems and students participate in them. Most notably the "GUIDed" mentorship programme is beneficial due to its appliance and diversity.

6. Free psychological and health-care services for students is a notable practice.

7. Peer mentors are presented not only for BSc, but also for MSc students. This helps with the integration and consultation processes for second-cycle students.

(2) Weaknesses:

1. The KTU website should include more detailed information about additional studies in English as well as country-specific requirements for foreign students.

2. The information about partial studies on the KTU website should be updated and made as clear as possible. The section presenting the partner institutions should be modernised. Moreover, the mobility rates are quite low.

3. The university has a lot of services for students, but having that many services requires their maintenance and periodical reviews – it is advisable to assess these services, taking into account the opinion of students and other stakeholders.

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

Kaunas University of Technology (KTU) offers several first and second cycle study programmes. Three programmes are carried out exclusively on full-time basis (Sustainable and Energy Efficient Buildings, Structural and Building Products Engineering, Construction Management and Construction Management –Panevėžys Faculty of Technologies and Business), while Civil Engineering study programme is organized as full-time and part-time studies. Annex 1 (Programme structure), consists of several study programmes on the first and second cycle.

Different study methods are used: classroom (lectures, exercises, laboratory works, consultations seminars, outbound visits to companies), independent work and internship in undergraduate studies.

Three ways of conducting the classroom classes (in distance - synchronous or asynchronous manner or mixed form), are introduced: full-time - academic classes take place on weekdays during the day, evening classes are organized on weekdays during the evenings, as well as weekend classes which are carried out during the weekends. Evening and weekend classes are organized in Panevėžys, while full-time classes are in Kaunas.

Principles for defining and accounting the learning outcomes, the procedure of study modules assessment and requirements for participation of students in classes are based on the Regulations on the Assessment of Study Modules.

Usually, at the beginning of the semester, teachers present the content of the module, main goals, learning outcomes, assessment methods and criteria, and the way of organizing the lectures. Additionally, this information is part of the Academic Information system, as well as the Moodle Virtual Learning Environment.

Detailed presentation of learning outcomes, teaching/learning and assessment methods, as well as results of study programmes for study modules is available in Annex 2 – The Consistency of the Study Results of the Study programme with the Study Modules and Assessment Methods. In addition, the University provides Annex 3, in which the relation matrix of the study modules and learning outcomes of different study programmes is offered.

Active students' involvement in study process is encouraged and successful achievement of the learning outcomes are based on applying of different learning methods (case study, design thinking, discussions, group work, idea mapping, lectures, problem-based learning, inquiry-based learning, challenge-based learning, reflective learning, role play, seminar, debates, team project, laboratory classes), can be concluded based on Annex 2.

When it comes to assessment methods, exams, colloquia, task solution, laboratory work, project reports, computer-based exams, paper analysis, control work, individual work, portfolio/learning logs/competency portfolio, problem solving, reflection on action, engineering project, are put in place.

In addition, the accumulative assessment system (based on the marks of intermediate and final assessment) is in use throughout the University. It should be noted that the student's activity is also assessed (up to 10% of the final mark), for evaluation of the students' preparation for case analysis, active discussions, participation in debates, and case analysis.

The above-mentioned Annex contains study module Product Development Project (it is a part of the first study cycle study programme of Civil Engineering and its first-time realization is planned for the spring semester of 2022). The possibility for choosing this subject is very useful due to its specifics. Namely, it is organized based on joint work of different participants in study process (teachers, social partners, interdisciplinary student teams), on solving real

professional problems. In that way, the link between academic and professional environment is becoming stronger and enables students' knowledge, skills and competencies development, that are in line with those needed in practice. In addition, it should be emphasized that the specified learning outcomes, methods of assessment and expected results of the study programme follow the attributes of this module.

Introduction of Joint Project study module in study programme offered by the Faculty of Civil Engineering and Architecture (Annex 2), is another way for enhancing students' knowledge, skills and competencies through teaching and learning methods oriented towards creation of conditions for group work on actual construction projects, as well as involvement of teachers from different fields who lead the module. The point is that each student is responsible for a specific part of the project, but at the end the whole group analyses the offered solutions and agrees regarding the final result and prepares a report. The assessment is organized as oral presentation of the project, commission exam, and, very important, peer-assessment. The topics for this module are suggested by teachers, students and external stakeholders (from Kaunas District Municipality in 2020).

In order to facilitate the study process for the first-year students, remote bridging courses of individual learning are offered.

Personal professional development of graduates, alumni, employers, and professionals is enabled through organizing lifelong courses.

There is a possibility for first cycle graduates to continue their studies in the second cycle, and further continuation to the third cycle in the field of civil engineering.

(2) Expert judgement/indicator analysis

In terms of the applied teaching/learning methods as well assessment methods, the expert team noted that they are in line with the intended learning outcomes of different study modules. In addition, the accumulative assessment system is based on the assessment of intermediate and final assessment, as well as the assessment of student's activity.

The team recognizes efforts for:

1. Connecting the academic and professional environment and in that way obtaining skills and competencies required for future professional work (Product Development Project and Joint Project). The above mentioned is important because of the possibility for team working, the way topics are suggested and chosen (including not only students, but also external stakeholders), peer - assessment procedures and providing feedback;

2. Attracting high school pupils and controlling the loss of students. Namely, facing challenging circumstances related to reducing the number of young people enrolling in the first year of study, remote bridging courses of individual learning are offered;

3. Creating conditions for continuous scientific and professional development, through the possibility for smooth transition from the first to second and third study cycle, as well as offering various lifelong courses;

4. Taking measures towards realization of the expert panel recommendations provided during the external evaluation (In order to achieve full equivalence of full-time, part-time and English language studies, unification of independent and classroom working hours of full-time and part-time studies is provided).

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

(1) Factual situation

An academic environment with equal conditions for all students, regardless of social or health issues (socially vulnerable groups, students with special needs) is guaranteed with the Equal Opportunities and Diversity Policy, a legal act.

A section of the University website, titled Adaptability of Studies for Students with Special Needs, https://students.ktu.edu/studies-accessibility/ refers to first-year students. They can obtain additional information from the KTU Student Information as well as the Service Centre.

There is a social welfare coordinator at the Department of Student Affair who is in charge of providing consultations in cases students need clarification or support for finances, assistance, study process, integration in study process issues. Additionally, flexible forms of assessment based on the institution capacities and students' special needs are provided for students. The Civil Engineering and Architecture Faculty's Study Centre staff' s duty is to inform the teachers if there is a student with special needs, as well as to adapt the location of classes and facilitate the whole study process. Laboratories are equipped with software for visually impaired students.

The focus for providing appropriate conditions for students with special needs is reflected through physical adaptations of the building at the Faculty of Civil Engineering and Architecture in Kaunas (changing the location of some rooms closer to the lift and installing the ramp to facilitate the access to the study centre and teachers' office).

On the KTU website (https://students.ktu.edu/), there is a section „Counselling Psychology" for providing free psychological assistance to students, while on https://students.ktu.edu/studies-accessibility/ in part named „Accessibility to study process for students with disabilities or individual learning needs ", the opportunity for psychologist free services is offered for students. Additionally, a permanently active survey of students with different disabilities or individual educational needs in order to facilitate their studying is organized.

There is also a part on the website dedicated to students' Emotional and Physical Health (https://students.ktu.edu/wellbeing/).

To facilitate the relations between university staff on one hand and socially vulnerable groups and students with special needs on the other, the Department of Student Affairs organizes trainings for administration and teachers. The Student Association is also included in organizing social events regarding equal opportunities.

(2) Expert judgement/indicator analysis

The team found that the University focus is placed on students and their needs, through the introduction of procedures for mutual respect for their differences. Bearing in mind the challenges that socially vulnerable groups and students with special needs face during study, ensuring that they have conditions for receiving good quality education in an inclusive environment, should have an important place in everyday working of higher institutions. Therefore, as from the Self-Evaluation Report, University website and meetings during the site visit, it can be concluded that there is a legal based and publicly available approach in organizing the study process for socially vulnerable groups and students with special needs.

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

The Department of Academic affairs is in charge for analysing and monitoring the learning outcomes achievement based on the various information regarding study process as a whole (evaluation the adequacy of academic environment for students' advancement, through setting and analysis the indicators of progress, taking measures for improving the study results, evaluation of the correlation between attendance on one hand and drop-out /study progress on other hand. The obtained results are the basis for preparing the annual report which is presented at the University level (Rector's office). In addition, Fields' Study Programme Committee, which is responsible, among other things, for quality, development and achievements of the study programme goals, is monitoring the results in studying through the University Academic Information System.

Legal acts that regulate systematic monitoring of students' progress are: Guidelines for the Identification of the Students' Learning Achievements, Making of Comparative Queues and Redistribution of the State-Funded Places of Studies, Regulations for the Assessment of Study Modules. In accordance with the Self Evaluation Report, each of these procedures is oriented towards evaluation of student's achievements from different aspects. For example, the goal of the second mention procedure is "annual identification of the levels of the student's studies" – SER, 2021, The Regulations for the Assessment of Study Modules, regulates the procedure for assessing the realization of each study module, as a whole.

The evaluation results regarding student's absence in classes (participation in the laboratory work classes is mandatory, for other types of classes it depends on the subject module requirements – for example at least 60% participation), can be recorded in the Academic Information System connected with, so called, Early Warning system, administered by the Study Centre on the Faculty level. The main goal is to react timely to the observed individual

behaviour of the students, in order to prevent unsuccessful studying or even termination of studies (appointing academic mentors).

The ways in which teachers provide feedback to students (hand-written or other types of comments for each student, comments to the group of students as a basis for discussions and interpretation of the results, comments via Moodle tools, email or video conferencing platforms), depend on the specifics of the study module regarding learning outcomes, teaching/learning, assessment methods.

This feedback is also possible during non-academic classes (from 0,5 to 2 hours per week, on the schedule presented in the Academic Information system).

Having a personal teacher responsible for professional student development (5 different types of mentors with different areas of working in GUIDed Mentorship Programme - https://students.ktu.edu/services/guided/) facilitates studying and participation in higher education environments.

Various events organized by the higher education institutions (formal and informal), are a good base for discussions and sharing opinions and good practices for teaching, learning, research among academic staff and students.

(2) Expert judgement/indicator analysis

The SER and discussions with target groups during the site visit, provide details on monitoring of students' results as well as feedback to students within the Institution. The expert team is pleased to note that this Higher Education Institution has identified monitoring student progress as a strong predictor of students' achievement. Therefore, a comprehensive and systematic approach based on guidelines, procedures, and regulations is put in place. Additionally, it includes many kinds of activities and obviously many different University structures (departments, bodies), and stakeholders (teachers, administrative staff) in keeping and interpreting data on student performance. Furthermore, the attributes of applied approach (holding students accountable for their work, frequency and regularity in carrying out monitoring activities, collecting, scoring and recording the results, as well as providing the feedback to students), is oriented towards effective monitoring.

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

(1) Factual situation

Different ways of monitoring graduates' employability and career are put in place. Namely, the institutional study quality assurance system is based on the involvement not only of internal, but also external stakeholders. Therefore, useful information regarding employability and career is obtained at various events organized by the University (publicly available on the information board or on WANTed - https://wanted.ktu.edu/). WANTed is a University platform where detailed information regarding career days, internships and work places are provided (It should be noted that one of the positive aspects in the processes of

graduates' career development is the opportunity for international internship in a duration from 2 months to 1 year).

Additionally, it is important the role of external stakeholders in the process of preparation, assessment, realization and improvement of study programmes. Namely, as members of different bodies and commissions, as well as their partial involvement in the teaching of study module, choosing the topic for the final degree projects and participation in its defence, they are active factors contributing to the study process as a whole.

The results of the employability from 2017 until 2019 (provided by the national source - Government's Centre for Strategic Analysis – STRATA) are presented in Table 4.1 – Self-evaluation Report. It can be concluded that there is a stable percentage of employed graduates, (first and second cycle in 2017 and 2018), in the period of 12 months after completing the study. According to the SER, the evident decline in 2019 is most likely due to the exclusion of graduates who work abroad.

It is apparent from the discussions, the panel held with University management team, teachers, and employers, that the demand for the employability of graduates is significant (As it is noted in the SER, the mentioned is approved during the interviewers with the students on first and second cycle study programme of Civil Engineering). Additionally, 72% of graduates of the Construction Management study programme, in the period (2018 – 2020), at Panevėžys Faculty of Technologies and Business are employed in higher professional and management positions.

(2) Expert judgement/indicator analysis

The university's presentation of this indicator, along with the discussion with different focus groups, points to the conclusion that, besides the internal stakeholders, the employers, alumni and social partners are also involved in monitoring the employability and development of graduates' career. Namely, participation of external stakeholders in different legal bodies and commissions, surveys conducted by the university, mutual events, are the ways for sharing the opinions and good practices not only for monitoring the development of the graduates' career and employability, but also for improving study programmes. Therefore, it should be stressed out that university pays special attention to involving outside stakeholders in the study process improvement, bearing in mind the requirements of the labour market and their returns obtained by the alumni and employers in terms of the quality of the jobs and employment.

Using relevant state data on employment is very beneficial, but only in case of combination with University Metadata on this issue and practicing triangular method for collecting and processing all the data obtained. Therefore, the expert panel recommends the University to establish a system and procedures for creating its own database on graduates' employment in order the final analysed results to be more accurate and reliable for the institution.

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

(1) Factual situation

The institutional Body of Academic Ethics is responsible for investigating cases of possible academic violations at its initiative or at the initiative of any member of the University's community. The appeal (based on the Code of Academic Ethics) is submitted directly to the mentioned Board or via the Academic Information System.

Students commit to adhering to the principles of academic integrity by signing the learning agreement and the declaration of academic integrity.

The Guidelines for the Organization and Performance of the Assessment of Study Modules regulates the assurance of integrity, transparency and quality of the assessments through adoption of various preventive measures regarding organization and realization of the exams (conducted by the commission of invigilators), laboratory and semester's works, and other forms of assessments.

The Commission for Settlement of Academic Violations consists of University employees and students. This body oversees investigating possible cases of academic violations during the assessments.

The requirements which should be fulfilled during the preparation of written works are part of the Methodological Requirements for Written Works, courses presented in the Moodle. Additionally, the University Library organizes various trainings related to the topics of copyrights, plagiarism prevention, citation of the sources, preparation of the list of references.

Procedures for inspection and plagiarism detection are presented in the Guidelines for the Detection of Plagiarism in the Students' Written Works (Final works written in Lithuanian language are inspected through the EPAS (ESAS) system, while works in foreign language are reviewed through international co-occurrence inspection system iThenticate. In accordance with the plans, the Turnitin system in both Lithuanian and English will be used).

When it comes to the semester's written work, the inspection is conducted through electronic and the internet search systems or in a manual way.

Cases of academic violation are solved by the Dean or the Commission for Settlement of Academic Violations.

Reprimand, strict reprimand or notifications are measures usually used for the first violation of academic integrity. If the violation happens again, the studying is terminated.

The Equal Opportunities and Diversity Policy is applied for ensuring tolerance and non-discrimination. It covers all University's functions and refers to all employees and students as well as persons who apply to the Institution.

The decision regarding the violation of the rights (submission of the case is realized through the electronic system pranesk.ktu.edu, or on this email: pranesk@ktu.lt), is reached by the University body named University's Equality Committee, in consideration with the legal regulations.

In the past three years, penalties in the form of severe reprimand, reprimand or termination of studying were put in place. On the other hand, there were no submissions for violation of rights for tolerance and non-discrimination.

(2) Expert judgement/indicator analysis

Respecting the principles for ensuring academic integrity, equality and non-discrimination is the foundation of various University bodies and commissions such as: Body of Academic Ethics, Commission for Settlement of Academic Violations, University's Equality Committee.

The legal framework contains regulations such as: Code of Academic Ethics, The Guidelines for the Organization and Performance of the Assessment of Study Modules, Methodological Requirements for Written Works, Guidelines for the Detection of Plagiarism in the Students' Written Works, The Equal Opportunities and Diversity Policy.

Detailed procedures for submitting, analysing and making decisions regarding cases of violation of academic integrity, tolerance and non-discrimination are put in place.

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

The procedure for submitting and processing appeals and complaints is presented in detail in the legal University act titled Guidelines for the Submission and Processing of the Students Appeals and Complaints. In accordance with the procedure, one student or group of students can submit complaints, while the appeal should be submitted only by one student. The guidelines prescribe cases for which an appeal/complaint may be submitted, as well as the board/commission to which the appeal/complaint should be addressed. Further actions (if student is not satisfied with the decision made) should be directed to the University's Dispute Settlement Commission.

In the past three years (2017 – 2019), two complaints and no appeals have been submitted (The complaints were successfully resolved by talking with the relevant teachers).

(2) Expert judgement/indicator analysis

Details regarding the stages of the procedure for the submission and examination of appeals and complaints are presented in the Guidelines for the Submission and Processing of the Students Appeals and Complaints.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The applied methods of teaching, learning and assessment promote the active engagement of students.

2. Flexible forms of evaluation of achievements, appropriate access and support for socially vulnerable groups and students with special needs are provided.

3. Identifying the practice of monitoring student learning as an essential component of high-quality higher education.

4. Comprehensive and continuous monitoring of graduates' employment and their career includes different ways of obtaining the opinion what graduates and employers consider university can do towards better support of employment.

5. There are many University instruments (bodies, commissions, regulations), for protection of the rights of different internal stakeholders and ensuring academic integrity, tolerance and non-discrimination.

6. Each party's responsibilities and the roles they have in the process of submission and examination of appeals and complaints as a part of the Guidelines for the Submission and Processing of the Students Appeals and Complaints are clearly stated.

(2) Weaknesses:

1. Weak University system and procedures for creating a database on graduates' employment.

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

The general number of teachers, who are working at least 0,5 Full-time Equivalent and for more than 3 years are 119.

The study programmes of Civil Engineering are having the teachers:

a) Master's degree studies are having 39 teachers. The number of professors is 7, the average of age – 45,8. The number of associated professors is 17, the average of age –

45,6. The number of lectors is 11, the average of age – 45,5. Also, in the Master degree studies there are 2 doctoral students involved.

b) Bachelor's degree studies have 46 teachers. The number of professors is 4, the average of age – 48,5. The number of associated professors is 17, the average of age – 47,4. The number of lectors is 23, the average of age – 45,5. Also, in the Bachelor degree studies there are 2 doctoral students involved.

The teaching staff working in master's and bachelor's study programmes have the requirements specified in the KTU Description of General Study Requirements. The ≥ 80% of master's degree teachers are having a doctoral degree, the ≥ 20% of teaching staff are professors and ≥ 50% of the volume of the first cycle university study field are researchers with doctoral degrees. The teacher’s position and degree have remained rather stable over the last few years.

The workload of teachers for teaching is regulated by the approved KTU Regulations for the Accounting of Teachers' Work.

The work of teachers consists of three main fields:
- pedagogical work (study modules, supervision of final projects or doctoral students);
- research activities (research, experimental development and innovation activities, scientific publications, presentation of research results at conferences);
- expert-consulting and methodological activities (representative, expert work, participation in the committees and other academic activities.

The amount of pedagogical field is 720 hours per year, the amount of research field is 530 hours per year, the amount of expert – consulting field is from 100 to 300 hours per year.

Professors and Associate Professors are delivering the lectures, and are participating in research activities. Professors should have certain pedagogical experience. Lecturers are delivering lectures and practical courses, laboratory classes for students, and working on methodological work. Assistants have opportunities to be involved only in practical, laboratory works, and exercises.

The average of the academic groups in the first and second cycle study programmes of Civil Engineering during the last three years is 15-30 students.

In the Master degree studies the rate of student divided to teachers is 1-2 graduates per teacher, depending on the programme. In the Bachelor degree studies the rate of student divided to teachers is 5 graduates per teacher.

Professors and associate professors typically supervise up to 3 Master students preparing final projects.

Professors, associate professors and lecturers supervise up to 5 undergraduate students preparing their final projects.

34 % of teachers working in Civil Engineering programmes have significant practical experience.

Teachers with practical experience are involved in supervising the design work and preparation of complex projects. Teachers with practical experience are showing high competencies in BIM methodology including the choosing of software applications.

In the programmes of the study field of Civil Engineering invited lecturers from other institutions to lecture (teachers, visiting lecturers and visiting lecturers - practitioners).

(2) Expert judgement/indicator analysis

The number of teachers in the Master degree studies and Bachelor degree studies is enough to reach the results.

In the teaching process of Civil Engineering programmes are enough the professors and associate professors.

The teaching staff are young: in the Master degree studies average of age is 45, in the Bachelor degree studies 46.

The amount of pedagogical field is 720 hours per year, the amount of research field is 530 hours per year, the amount of expert – consulting field is from 100 to 300 hours per year.

Professors and Associate Professors are participating in research activities and publishing scientific articles.

Approximately 30 % of teachers have a practical background.

Teachers have the competencies and knowledge to work with the tools of BIM.

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 staff of KTU is encouraged to participate in "Erasmus+" mobility for teaching and learning programmes. During the evaluation period the numbers are: Erasmus+ for teaching - 17 visits, Erasmus+ for personal mobility - 27.

The teachers and non-academic staff through "Erasmus+" are having various visits to universities and companies in the EU, Asia and Central America.

KTU is cooperating with institutions and universities from Norway, Turkey, Iceland, Liechtenstein, Northern Macedonia, Serbia, Mexico and India. The cooperation is based on the signed agreements for ongoing Erasmus+ KA2 projects.

"Erasmus+" staff mobility visits were used by 38% of FCEA teachers over three years.

The main benefits of academic exchange are:

- The benefits of the teaching modules;
- The direct benefit to the teaching Programme;
- Increasing the Competencies of Teaching staff;

- Extension of Research Contacts;
- Participate in the Research networks.

During the exchange programmes KTU got the links with the Aalborg University, University of Twente, TEC de Monterrey, etc.

The experience during the mobility visits was used to improve BIM integration.

Through the cooperation between KTU and other Universities, was improved quality of lectures: focus on building digitization technologies and smart city technologies, etc.

Through the cooperation between KTU staff and other Universities staff, it is directly growing the number of research projects, are increasing the number of publications with co-authors from foreign institutions, growing the number of invited teachers' lectures at KTU. For example, some of the KTU teachers were involved in these projects: "Advanced Engineering and Research of AeroGels for Environment and Life Science", "Self-reinforcement - as a preventive repair of concrete structures", "European Shallow Geothermal Energy Network for Buildings and Infrastructure" and others.

(2) Expert judgement/indicator analysis

The teachers of study programmes are active in the mobility program "Erasmus+".

KTU is having the International Erasmus+ KA2 projects.

The teachers of study programmes are seeing the benefits of academic exchange: increasing the quality of studies, increasing the competencies of teachers, extension of international network in the teaching and research level.

The number of research projects and scientific articles is rising.

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

(1) Factual situation

KTU has approved the Procedure for Improving Teachers' Didactic Competences.

KTU's improvement of didactic competencies of teachers is ensured by the Edu Lab Teaching and Learning Competence Centre, which has been operating for five years.

The teachers are improving the didactic competencies by participating in basic training courses and other trainings of innovative study methods.

Also, the teachers are invited to join the "Follow up" programme, in which they develop and improve the teaching/learning activities of the study modules in consultation with Edu Lab experts.

Edu Lab Teaching and Learning Competence Centre is collecting feedback, based on which it initiates the development of new curricula and the improvement of existing curricula.

The teachers of Civil Engineering studies are improving their didactic competencies in KTU Edu Lab every year.

From 2017 until 2020 more than 72% of Civil Engineering studies teachers raised their qualification at least once.

Half of the teachers of the field modules improved in Edu lab courses 1 or more times a year.

The most popular trainings are "Problem-based and project-based learning", "Design-based thinking". Building Information Modelling in Study Process, Research and Practice and others.

KTU is taking the initiative “Colleague-to-Colleague”, which helps experienced and younger teachers to share experiences.

The Teachers of KTU are improving their scientific competence by participating in international scientific conferences, research internships, long-term training, seminars in Lithuania and abroad.

Various teams of KTU members are participating in the project activities, which directly ensure the implementation of the newest research, BIM software, and new didactic methods in the teaching process. For example, some of the KTU teachers were involved in the projects: “Nordic_BIM_edu-Development of skills for building Information Modelling (BIM) in Nordic countries higher education”; “Optimization of study programmes and strengthening of pedagogical competencies of teachers of physical and technological sciences” and others.

There are possibilities to get financial support from the Lithuanian Science Council (projects of research groups, high-level MTEP activities and other funding instruments).

There are opportunities to get additional financial support from KTU internal financing instruments for research clusters, research projects for young researchers and others.

There are possibilities to improve the skills of foreign languages. More than 20% of teachers are improving their English language skills. In addition to English, teachers speak at least one other foreign language: Russian, German, Polish, Italian, French.

KTU organizes an additional employee training course. Employees are granted the right to listen to one module during one semester at KTU's expense and to receive an academic certificate certifying professional development upon successful completion of the report.

(2) Expert judgement/indicator analysis

KTU has a system for improving the teachers’ competencies. The teachers are improving the didactic competencies by participating in basic training courses. Teachers of Civil Engineering studies are improving their didactic competencies every year.

The KTU is taking the initiative to help experienced and younger teachers share their experiences. There are opportunities to get financial support from State funds and from KTU funds for the Research activities. There are also opportunities to improve the skills of foreign languages.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The teaching staff are young;

2. The number of professors and associated professors involved in the teaching process is high;

3. Teaching staff are active in mobility projects;

4. The teachers have a clear system for improving competencies;

5. The number of research projects and scientific articles are high.

(2) Weaknesses:

N/A

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 students of bachelor studies use the lecture halls, laboratories and computer rooms of the Faculty. The faculty has libraries, reading rooms, methodical rooms, etc.

For special events multimedia equipment is installed.

The number of seats in the room corresponds to the estimated number of students in all classes.

All premises of the University are developed according to state safety requirements including extra safety requirements on COVID – 19.

For the independent teaching process there are: reading room in the Faculty building (100 seats, 13 of which are equipped with computers), reading room of the Central Library of the University (114 seats, 24 of which are equipped with computers).

The faculty has a distance learning auditorium (room 117) with additional widescreen LED monitors and conference telecommunications hardware has been installed.

The faculty has mobile video conferencing equipment.

The faculty building has been adapted for disabled students.

The university computers are connected to computer networks with the speed of the computer network – 100 Mbps.

The computer rooms are having these software: ARChiCad 23 R1 INT, ANSYS 2019 R2, Mathcad 15 M020, MagiCAD 2020, MATLAB R2020a, SCIA Engineer 19.1, Autodesk 2020, Autodesk AutoCAD 2020 English, Autodesk AutoCAD 2020 Architecture 2020 English, Autodesk 3DX Max Design 2020, Autodesk AutoCad Civil 3D 2020, Autodesk Storm and Sanitary Analysis 2020, Autodesk Re Cap 2020, Autodesk Re Cap Foto 2020, Autodesk Robot Structural Analysis, Autodesk SketchPook Design 2020, Autodesk Revit 2020, BIM Interoperability Tools for Revit 2020, Autodesk Navisworks 2020, Tekla Struktures 2020, IDEA Statica 20.0.80, Solibri Model, Octave 5.2.0, FlOVENT 10.1, Microsoft Office 2019 (Profesional Plus 2019), Microsoft Visual Profesional 2019, DDS-CAD15, Solidworks 2019 SP05.

Students and teachers have access to Bentley software package.

The students are having possibilities to use specialized software: THERM 5.2, STAAD Pro, ELEM, EMMA, BetoMIX, Sistela, etc. Also, a specialized BIM laboratory is available.

KTU has the specialty laboratories: Construction Materials Laboratory, Construction Materials and Product Testing Methods Laboratory, as well as the following science and testing laboratories: physical and chemical testing, concrete and mortars, finishing and insulation materials, mechanical testing, mineral binders, aggregates, microscopic and dilatometry testing, shrinkage and creep testing, thermal testing, durability testing, mechanical testing, heating, microclimate testing, ventilation, renewable energy sources and fluid mechanics laboratories.

The main laboratory equipment for the study process are: testing machine Controls C5852; universal machine for testing the strength, elastic, plastic properties of concrete Toni Technik 2020; universal building construction testing machines and GRM2A modernized and designed for dynamic structural testing; valve testing machine R-50; Concrete rheometer BTHREOM; mixers for preparing concrete and mortars (Zyclos, Automix 65-L0006/A and etc.); Device DYNA Z16 Nr.9550 for identification of adhesion of materials with the base; drying cameras SNOL 58/350; electronic scales of various accuracies (Ohaus IS-45, GT 8000, HF-1200 GD and etc.); electronic test equipment: vibration meter Lutron VTJ-8200; Elcometer 331TH, allows spotting reinforcement and identify its diameter in up to 180 mm depth. reinforcement finder in concrete; digital concrete resistance meter RESI PROCEQ; digital sclerometer PROCEQ; combined ultrasonic pulse meter with bounce device Controls; electronic electrical signal recorder PicoLog, drone 3DR Solo for photogrametry and scanning of buildings and areas, structural defectoscope, 3D scanner Proceq GPR Live, digital video camera AxioCam 512 color, 12Mpix with image analysis software ZEN 2 Adapted for CETI STEDDY-T microscope, climatic cameras, infrared climatic cameras, automated freezing camera, infrared beam camera ThermaCAM, and thermographic analysis equipment, X-ray analysis equipment available on request, SEM microscope.

KTU has a Laboratory of Foundations and Building Physics. In this laboratory is installed: WILLE GEOTECHNIK equipment for soil compaction, shear, shear and odometric testing. Soil test result processing programmes: STS Triax 1.2.1.54 and Winbod.

There is also a universal environmental (humidity, pressure, temperature, wind speed) research device DELTA OHM-9847, and a thermal imager ThermoPro TP8.

The Laboratory of Building Materials and Structures has two presses with 2500 kN and 200 kN power with a standard control console.

The laboratory is equipped with a Schmidt hammer, Elcometer layer thickness gauge, which allows determine the strength of concrete, the quality of reinforced concrete structures, the thickness of the protective, reinforcing, concrete layer by non-destructive methods.

The Laboratory of Materials Science and Metrology is equipped with modern Brinell and Rockwell hardness measuring instruments, a modern metallographic microscope with a monochrome video camera, a portable hardmeter, and other laboratory equipment.

The Scientific Laboratory of Environmental Pollution and Noise is designed to delve into current transport and environmental issues. It stores equipment that allows research on traffic noise, vibration, and their impact on buildings and people. The laboratory is equipped with a modern noise and vibration meter SVAN 212 and various devices that can assess the harmful effects of noise and vibration.

During the study process, the students have two main practices: at the beginning of studies - engineering geodesy and in the final stage - industrial.

The KTU has a lot of agreements with social partners regarding industrial practice.

(2) Expert judgement/indicator analysis

In the Faculty there are enough classrooms, auditoriums, labs, reading rooms and libraries. All facilities equipment for teaching processes are installed. The faculty facilities have been adapted for disabled students.

The university computers are connected to computer networks with the speed of the computer network – 100 Mbps.

The computer rooms are utilized with numerous specialized software. A specialized BIM laboratory is available to students, while the KTU has special laboratories with expensive equipment.

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

(1) Factual situation

KTU computers have access to 55 electronic databases. Students have access to all electronic databases from their home computers.

KTU library is equipped with an electronic catalogue of books and publications as well as the integrated library information system ALEPH 500.

The Central Library offers the possibility of obtaining publications from other libraries by using the interlibrary loan system.

The library has access to the following databases: Web of Knowledge, EBSCO Publishing, ScienceDirect, Emerald Fulltext, SpringerLINK, Oxford Journals, IEEE/IEL, American Institute of Physics, American Physical Society, Institute of Physics Journals, SAGE Journals, Wiley Online Library, Annual Reviews Morgan & Claypool, ACS Publications, Ebrary. Full textbooks are available through Springer LINK and EBRARY databases. There is also access to the Zentralblatt MATH DB. The library also subscribes to the Lithuanian legal information database Litlex-Internet.

All study materials are presented in the virtual learning environment "Moodle". On the "Moodle" platform teachers place module programmes, topic plans, lecture presentations, assignments, exam questions, tests and so on. The "Moodle" learning platform is one of the main tools in the teaching process.

(2) Expert judgement/indicator analysis

For the teaching process there are possibilities to have access to electronic databases. Students have access to learning material from their home computers.

All study materials are presented in the virtual learning environment "Moodle".

The use of "Moodle" in the teaching process is found to be positive.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. There are excellent facilities and equipment for the teaching process;

2. There are specialized labs with special equipment;

3. There is a specialized BIM laboratory;

4. Students have access to databases from their home computers;

5. "Moodle" learning platform is a great tool for teaching.

(2) Weaknesses:

1. It is necessary to speed up the installation of facilities for disabled people;

2. Buy the software distributed for alternative resources calculation for wind and sun.

3.7. STUDY QUALITY MANAGEMENT AND PUBLIC INFORMATION

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

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

(1) Factual situation

The university's management is based on the university's Statue. KTU Statute, KTU Provisional Academic Regulations, KTU Code of Academic Ethics, LR Law on Science and Studies. The University has an advisory committee, the University Study Quality Committee.

During the visit, the valuation team met with the Quality Assurance (hereafter – QA) unit officers. The officers were found to be knowledgeable and extremely active. They presented the QA Manual that demonstrates the implementation of the internal self-evaluation procedures through a structured methodology. The QA manual covers the different parts of the QA approach implemented at the KTU, where the QA model of the university is also presented. The manual covers the assessment of students, teaching staff and learning resources, whereas the information system through which the data are stored is included. Finally, the manual covers public information, results and their analysis, and sustainable development and social responsibility.

As it was discussed through the meeting, the QA unit was not only responsible for analysing the students' feedback that derives from relevant surveys, but it was also engaging in different QA exercises including the monitoring of teachers during their lectures. Some additional data were requested from the QA officers during the visit, which they provided in English. The KTU has a competent and well-functioning QA unit.

The QA officers informed the evaluation team that a new/improved QA manual is currently being developed.

(2) Expert judgement/indicator analysis

The evaluation team was pleased to find a well-structured QA system in place, which was significantly improved compared to the last evaluation visit at the university. This indicates progress, growth and above all improvement that is a sign of good practice when it comes to the QA system and the effectiveness of the internal self-evaluation process. In addition, the QA unit shows evidence that it continues to improve through the development of a new QA manual, which is also a sign of good practice.

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, all stakeholders are involved through analysing their opinion. The internal system for quality assurance (QA) in studies is based on the following principles:

a. The improvement of quality is based on the University's vision, mission, values, strategic objectives and the goals stipulated by the strategic plan;

b. The University's framework of the quality system is based on the guidelines for quality assurance in the European higher education and the excellence framework of the European Foundation for Quality Management;

c. Everyday activities include the combining of various approaches to quality from perfection to compliance with requirements and satisfaction of the needs and expectations of the interested parties;

d. Everyone is expected to be responsible and accountable for the quality assurance in studies;

e. Assurance of openness and tolerance with regards to new and creative methods of operation and their diversity while improving the quality of studies;

f. Systematic approach is applied to the quality of studies while maintaining the link between the teaching and the research;

g. The members of the University's community and its social partners are involved in the processes of quality assurance and improvement of studies;

h. The University aims for the active involvement of students and student self-government in the quality assurance and improvement of studies;

i. Attempts are made to develop a quality culture.

The social stakeholders are involved in all the processes of preparation of the study programme, the quality assessment and improvement according to the level of their competence. At the beginning of the autumn semester in 2020, most of the studies were also conducted remotely, so the quality of Moodle courses was also reviewed.

Surveys given to companies were also presented during the visit, where the social partners and company representatives were interviewed.

(2) Expert judgement/indicator analysis

The stakeholders confirmed that they take part in the improvement procedure of the study programmes, where they provide with their feedback through surveys. According to the companies, their involvement is not constrained only at providing feedback, but the young students of the study programmes are approached from an early stage and they are connected directly to the industry. Additionally, the companies discuss new technology with the university and about new trends in the construction industry that should be incorporated in the study programmes. This is a sign of good practice.

It is recommended that the QA unit should develop Alumni surveys and get the feedback from the Alumni of the study programmes. If there is no Alumni body, then the QA unit should suggest the creation of one.

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

(1) Factual situation

Based on the SER and the QA manual, the feedback from different parties that is used for QA purposes includes the assessment by students, teachers, administrative employees, alumni, employers and social partners. The presentation of the student survey results reveal that the university is received in a positive manner. The University performs a yearly survey to measure the employees' satisfaction ("Openly"; "Atvirai") in which the employees assess the University and the faculty. Employee satisfaction was found to be increasing.

It was also pointed out within the SER that the study programme committees carry out informal advisory surveys recording the feedback of the social partners. The latest survey performed with companies operating in the field of civil engineering was performed by FCEA and FSPC in 19th of November 2020, which showed that companies in the sector noticed a satisfactory theoretical preparation of FCEA graduates. The survey also showed that the companies would like the study programme to have their students developing better practical skills and train them to develop critical and innovative thinking.

According to the SER, the university collects all the information and analyses it, while the information on study programmes is also disseminated through:

- on the website of the National Education Agency under the Ministry of Education, Science and Sports of the Republic of Lithuania,
- on the website of the Centre for Quality Assessment in Higher Education,
- on the website of the Association of Lithuanian Higher Education Institutions for Centralised
- Admissions (LAMA BPO).

Moodle is also engaged in the collection of feedback from students. Furthermore, teachers are asked to express their comments and suggestions through surveys, faculty meetings, and annual preparation of faculty activity reports.

(2) Expert judgement/indicator analysis

The collection and evaluation of information at the KTU is performed in a structured method through the collaboration of the QA unit that operates at the university. All data are stored and made available to the evaluation team upon request. This is a clear indication of good practice.

Based on the visit findings, the QA unit has knowledge of all information that is collected and analysed by them, where the outcomes are monitored and recorded. The publication of the information is performed according to the QA manual, where the findings of the analysis of the collected data are published on the website of the university and other platforms. In order to further the QA unit's efficiency, the university should consider developing a QA application

through which the QA unit will be able to define its objective, monitor the actions implemented in achieving these objectives and then record the outcomes of those actions. This application could become an important tool in the hands of the QA officers in the near future, since it will help them with the implementation of the QA cycle.

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

The KTU performs surveys that are distributed to students in an attempt to evaluate the teachers and the offered courses. The average evaluation during 2017-2019 was 3.67 out of 5.00. Surveys were also performed during the pandemic where 145 FCEA and 20 PFTB students participated. This survey revealed that 85% of the courses had material uploaded on Moodle, 84% had all the lecture material uploaded, and 90% had all the assessment information.

The evaluation team was pleased to see that the SER presented a self-evaluation feedback that included strengths and weaknesses. According to the provided Table on page 82 of the SER, only one recommendation was suggested based on the last external evaluation (Individual work reports should be examined more carefully). Within the same Table, the actions taken from the university in order to remedy this issue are presented, while the measuring of the effectiveness of those actions is also provided (closing the loop).

A crucial factor in receiving un-biased feedback that will lead towards reliable conclusions is the participation rate during the surveys. This is allocated as an area of improvement within the SER, where the KTU states that they should encourage their students to participate in these surveys given that it helps them improve.

(2) Expert judgement/indicator analysis

The quality of the studies at the KTU is being evaluated consistently through surveys given not only to students but the companies as well. The feedback that is received from all stakeholders, including the field students, is evaluated by the QA unit and the management of the study programmes.

During the interview with the field students, it was noted that they were able to speak their mind and express themselves confidently, where they did not just state “we are happy with everything, there is nothing wrong nor there is nothing that can be improved”. This behaviour shows that the teachers and administration of the KTU are doing a very good job in developing thinkers and good future leaders that will be able to be truthful, recognise problems and thereafter find ways to solve them. As it is well known, in order to solve a problem, one must recognize that there is a problem. The same applies to recognizing areas of improvement. The opinion of the field students at the KTU that were interviewed showed that they had developed the ability to do so. This is also an indicator of good practice.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Well organized and enthusiastic QA team.
2. The university recognizes the importance of implementing QA and internal self-evaluation standards.
3. The management of the study programmes look energetic and enthusiastic, recognizing the crucial role of QA and how it can help in further improving their field.
4. Continuous improvement is noted that is attributed to the QA system in place.

(2) Weaknesses:

1. N/A

IV. EXAMPLES OF EXCELLENCE

It was refreshing to see a young Dean directly derived from the Civil Engineering Department that was able to understand each and every part of the needs of the department.

The same applies to the Head of Department and the faculty that were enthusiastic and knowledgeable. It is the combination of the Quality Assurance processes being implemented correctly through developing the respective culture and of course the team of people currently working at the department that create this dynamic blend that can only transpire success in the near and far future.

V. RECOMMENDATIONS*

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	Justification of the programmes and creating better opportunities for personalising the studies, developing complementary students' skills and broadening their individual profiles.
Links between science (art) and studies	Establish methods and incentives towards convincing students to utilize the Erasmus+ programme and other mobility schemes.
Student admission and support	Revise the requirements for partial studies. Devise a system for the revision of KTU services (academic support, social support, financial support, etc.). Periodically assess them, including of all stakeholders and not only during the surveying stage, but also during discussions on the improvements.
Teaching and learning, student performance and graduate employment	Integration of University data in presentation of graduates' employability. Develop course portfolios where all data related to each course will be stored and updated yearly.
Teaching staff	Continue with adding similar young and enthusiastic people to the team.
Learning facilities and resources	Accelerate with the completion of the facilities so as for the students to be able to start experiencing the new Campus.
Study quality management and public information	In order to further improve the evaluation performance of any study field, the QA unit should develop and work on an online tool that will be able to provide with an English translation of any old or new document that reaches them. Furthermore, the implementation of a methodology through which the level of success in achieving the programme learning outcomes should be performed.

*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 Kaunas University of Technology:

Overall, the evaluation team found Kaunas University of technology to be in very good shape with its people having high moral and offering an up to standard Civil Engineering Field that strives to improve every year. The KTU was not only found to be improving in a conventional manner, but it was also investing in numerous areas that would affect the well-being of the students. For example, the new library foresaw the addition of study areas and an atrium like area where students can relax and enjoy themselves. The evaluation team can only be further positively affected by the significant improvement noted during the visit. Also, the team of the SER development, Dean and teachers transpired enthusiasm and team spirit during the interviews. This was remarkable. The Civil Engineering field is in the good and capable hands of young scientists who are hungry to succeed in whatever they undertake.

Expert panel signatures:

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