CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD of ELECTRICAL ENGINEERING

at KLAIPEDA UNIVERSITY

Expert panel:

1. **Prof. dr. Toomas Rang, (panel chairperson),** *academic.*
2. **Prof. dr. Johan Malmqvist,** *academic.*
3. **Ms. Ernesta Varapnickaitė,** *students' representative.*

Evaluation coordinator – *Dr. Ona Šakalienė*

Report language – English.

Vilnius
2023

Study Field Data*

Title of the study programme	***Electrical Engineering***
State code	6121EX062
Type of studies	Bachelor
Cycle of studies	Undergraduate
Mode of study and duration (in years)	Full-time (4 year)/ Part-time (5 years, not relevant since 2023 admission)
Credit volume	240
Qualification degree and (or) professional qualification	Bachelor of Engineering Science
Language of instruction	Lithuanian English (only for full-time)
Minimum education required	Presented in part 3 "Student admission and support of SER
Registration date of the study programme	1997-05-19

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

CONTENTS

I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

The evaluations of study fields in Lithuanian Higher Education Institutions (HEIs) are based on the Procedure for the External Evaluation and Accreditation of Studies, Evaluation Areas and Indicators, approved by the Minister of Education, Science and Sport on 17 July 2019, Order No. V-835, and are carried out according to the procedure outlined in the Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC) on 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 (SER) prepared by HEI; 2) site visit of the expert panel to the HEI; 3) production of the external evaluation report (EER) by the expert panel and its publication; 4) follow-up activities.*

Based on this external evaluation report of the study field SKVC takes a decision to accredit the 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 is evaluated as satisfactory (2 points).

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

If study field and cycle were previously accredited for 3 years, the **re-evaluation** of the study field and cycle is initiated no earlier than after 2 years. After the re-evaluation of the study field and cycle, SKVC takes one of the following decisions regarding the accreditation of the study field and cycle:

To be accredited for the remaining term until the next evaluation of study field and cycle, but no longer than 4 years, if all evaluation areas are evaluated as exceptional (5 points), very good (4 points) or good (3 points).

To not be accredited, if at least one evaluation area is evaluated as satisfactory (2 points) or unsatisfactory (1 point).

1.2. EXPERT PANEL

The expert panel was assigned according to the Experts Selection Procedure as approved by the Director of SKVC on 31 December 2019, Order No. V-149. The site visit to the HEI was conducted by the expert panel on *February 12, 2024.*

1. Prof. dr. Toomas Rang, (panel chairperson), Department of Electronics Tallinn University of Technology, Professor Emeritus.

2. Prof. dr. Johan Malmqvist, Chalmers University of Technology Department of Industrial and Materials Science Head of Division Product Development.

3. Ms. Ernesta Varapnickaitė (students' representative) BSc graduate in Building Energetics at Vilnius Gediminas Technical University (Vilnius TECH), MSc student in Environmental protection management and technologies (Vilnius TECH).

1.3. GENERAL INFORMATION

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

No.	Name of the document
1.	
2.	

1.4. BACKGROUND OF ELECTRICAL ENGINEERING FIELD STUDY AT KLAIPĖDA UNIVERSITY

Klaipeda University (KU) was founded in 1991 by the resolution of the Council of the Republic of Lithuania. The focus of KU was set on development of regional competences through R&D and teaching activities with the local industry, but also beyond. The origin structure of KU has been changed during 2015-2019, which led to existing three faculty and two institutes structure in 2024. In 2023 about 2300 students were carrying out their studies at KU.

The international evaluation of the study program (SP) in electrical engineering (EE) from the Faculty of Marine Technologies and Natural Sciences took place in autumn 2021. The evaluation process was organised only remotely (TEAMS solution) due to the COVID-19 pandemia. The evaluation team had totally 6 members, and the evaluation teamwork was coordinated by Prof. Lászlo Tamás Koczy. Based on conclusions of the previous evaluation team, the KU has been positively evaluated for 3 years. The evaluation team made five major recommendations in its report which were as follows:

- Align the electrical engineering study programme outcomes with Klaipėda University's strategy to head towards maritime/coastal technologies and improve the visibility of the electrical engineering field at the university.
- Take actions to intensify research activities in the field of electrical engineering, mainly by ensuring wider engagement of study program teachers and build plans of attracting more and actively contributing research staff.
- Prepare plans for handover of key electrical engineering study courses for gradual replacement of teachers approaching retirement age and engage more staff for the field specific subjects teaching.
- Develop a plan for virtualization or remote operation of laboratories to mitigate the impact of quarantine caused restrictions on the achievement of learning outcomes.
- Stimulate addressing of testing and simulation phases of the engineering design process in the final thesis.

The following evaluation report in 2024 bases on materials presented in a self-evaluation report (SER) composed by KU SER team and on meetings with university staff, students, alumni, and industry representatives during the site visit on February 12, 2024, in KU, Klaipeda.

II. GENERAL ASSESSMENT

Electrical engineering study field and *first cycle* at Klaipeda University is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas

No.	Evaluation Area	Evaluation of an Area in points*
1.	Intended and achieved learning outcomes and curriculum	3
2.	Links between science (art) and studies	3
3.	Student admission and support	4
4.	Teaching and learning, student performance and graduate employment	4
5.	Teaching staff	3
6.	Learning facilities and resources	4
7.	Study quality management and public information	3
	Total:	24

*1 (unsatisfactory) - the area does not meet the minimum requirements, there are fundamental shortcomings that prevent the implementation of the field studies.
2 (satisfactory) - the area meets the minimum requirements, and there are fundamental shortcomings that need to be eliminated.
3 (good) - the area is being developed systematically, without any fundamental shortcomings.
4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings.
5 (excellent) - the area is evaluated exceptionally well in the national context and internationally.

III. STUDY FIELD ANALYSIS

3.1. INTENDED AND ACHIEVED LEARNING OUTCOMES AND CURRICULUM

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

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

Factual situation

The Electrical Engineering Study Programme at Klaipeda University aims at addressing the needs and development strategy of the labour market of Western Lithuania region that are described in strategic documents "Lithuania's Progress Strategy Lithuania 2030: Klaipeda 2030", "Western Lithuania 2025". Implementation of the SP is linked to the needs and benefits for society in terms of employment, environmental, health, prosperity, and modernity aspects. The aim of KU's EE study program is to prepare highly qualified EE specialists who meet the needs of the latest knowledge and information-based economy. Program will provide future specialists with the knowledge and skills necessary for the global engineering market activity, understanding the influence of engineering decisions and preparing a wide range of erudition for creative and critical thinking in EE and robotics specialists and ensuring the principles of lifelong learning. The learning outcomes of SP are arranged according to the recommendations of European Network for Accreditation of Engineering Education (EUR ACE) and include analysis and synthesis of electrical systems, industrial communication networks and robotics applications, designing, modelling, and experimental verification methodologies of automated control, energy, and measurement systems. These aims and outcomes are coherent with the field of activity of energy, automotive, food, shipbuilding and repair, wood processing, lighting and other manufacturing and design-oriented industries operating in the region.

Expert judgement/indicator analysis

The justification of the SP conformance to the needs of society and labour market are addressed considering a generally high demand for engineering graduates. It is shown that the Klaipeda region foresees a large demand for engineers with competence related to industry 4.0 trends, production digitization, robotics, etc up to at least 2030. The SP indicates that EE graduates are demanded across a wide range of industry and maritime business sectors. It was convincingly articulated during on-site interviews that the industrial sector really lacks engineering graduates in Klaipeda region, and the skills of the KU EE graduates enable employment in the sector. The small number of interested students in the SP is probably related to processes in secondary schools and society. Social partners suppose that pupils are afraid of too complex technological sciences and tend to study computer-oriented fields. To advertise engineering and EE in particular, teachers of KU cooperate with Klaipeda gymnasium by giving lessons, organising excursions at KU premises, etc. The local industry is also actively engaged to attract

students to EE, for example by providing scholarships. Despite these obviously good measures, the visibility of electrical engineering at KU still must be sharpened by advocating at university level and further promoting the field together with stakeholders.

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.

Factual situation

Being a multidisciplinary educational institution KU specifically heads towards the field of marine sciences and studies in its strategy. As an important regional Western Lithuania university, the KU aims at education and research related to coastal region industry and society needs.

Expert judgement/indicator analysis

The described and publicly advertised learning outcomes of EE SP are not explicitly bound to any maritime/coastal specific technologies. However, several elective courses of the SP are linked to maritime technologies. The coherence between the strategy of HEI and the study programme results in the field of maritime technologies could be further developed. By addressing the specificity of EE in maritime/coastal technologies and applications the SP could become unique in the country and thus highlight its identity stronger.

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

Factual situation

According to the classification of study fields by the Minister Decree 2016 Dec. 1st No. V-1075 the programme is attributed to the Electrical Engineering (E08) field. The structure of the programme complies with the requirements formulated in the Minister's Order on approval of description of general requirements for the provision of studies (No. V-1168 of 30 December 2016). In particular, the total ECTS volume of full-time mode is 240 and ECTS volume of one year in credits is 60 as recommended by the Law on Science and Studies of the Republic of Lithuania (Consolidated Version 19/06/2018). Practice and final thesis are awarded 15 ECTS each, which corresponds to the General study requirements according to the Order of Minister of Education and Science of the Republic of Lithuania Order No. V-1168. The number of study semesters (8), the volume of self-study of each study subject (more than 50 %) and the volume of general education subjects (21) are compliant with Resolution on the study regulations of KU approved by KU Senate. It is requested in the Order V-1168 that "50% of the first-cycle university level subjects of study fields must be taught by scientists/researchers". Though in the SER, a precise expression of percentage of subjects taught by scientists/researchers is not given and might be quite complicated to assess due to several teachers contributing to different subjects, it is evident that most of the staff declare their fields of scientific interest that are in line with the content of the Programme.

Expert judgement/indicator analysis

The expert panel confirms that the programme complies with national and KU's legislation requirements in terms of study duration, programme structure, and study volume expressed by ECTS credits applicable for the first study cycle. Requirements for the study field that are described in the Descriptor of the study field of engineering (Order No V-948) of the Minister of Education and Science of the Republic of Lithuania of 10 September 2015) are well addressed by the expected outcomes of the SP and supported by the programme study plan which includes general university study subjects (21 ECTS), field of study subjects (164) ECTS) , practice (15 ECTS) and final thesis (15 ECTS), accompanied with elective courses (46 ECTS). Outcomes of the SP are aligned with the expected knowledge, abilities, and skills outlined in the Annex 4 MATRIX OF RELATIONSHIP BETWEEN RESULTS AND STUDY SUBJECTS OF THE STUDY PROGRAM "ELECTRICAL ENGINEERING" IN THE FIELD OF ELECTRICAL ENGINEERING for the first cycle university studies.

Table No. 1. Study programmes' *Electrical Engineering.* compliance to general requirements for *first cycle study programmes (bachelor)*

Criteria	General* legal requirements	In the Electrical Engineering Programme
Scope of the programme in ECTS	180, 210 or 240 ECTS	240
ECTS for the study field	No less than 120 ECTS	164
ECTS for studies specified by university or optional studies	No more than 120 ECTS	46
ECTS for internship	No less than 15 ECTS	15
ECTS for final thesis (project)	No less than 15 ECTS	15
Contact hours	No less than 20 % of learning	40
Individual learning	No less than 30 % of learning	60

***** *In case there is a national Descriptor of the Field Studies, please check if there are no stricter requirements*

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

Factual situation

Teaching and study methods in the programme include lectures (contact and distance), exercises, laboratory works, problem solving, case studies, individual consultations, seminars, practice, and final thesis. The learning process includes individual and teamwork. Literature analysis, individual works, course projects, and final thesis are examples of individual studying in the SP. Teamwork skills are developed by delivering group tasks. Starting from the 4th

semester in the full-time study mode, the semester course work is coupled with projects in some modules (Electronics and Course work, Electrical Machines and Course Project, Automatic Control Theory and Course Project). Professional software for electrical systems modelling, signal processing, statistical analysis, electrical schematics drawing, microcontroller programming, etc. is used in the study process. Laboratories equipped with teaching stands serve for practical skills development by means of prototyping, programming, and measuring activities. Cumulative scoring is adapted in study subjects grading. The structure of the score is module dependent and is accessible for students in the Academic Information System. Assessment methods applied in the subjects of the SP include written and oral exams, intermediate exams, tests, defence of laboratory work reports, and defence of final thesis.

Expert judgement/indicator analysis

The panel concludes that the broad scope of teaching/learning and assessment methods comply with the aims and outcomes of the SP quite well. Software and hardware supporting online learning were acquired during and after Covid 19 and remain in use, now enabling a more flexible learning environment for students. Some laboratory equipment is up to date, but some, especially supporting learning of basic electrical engineering, is rather old. Thus, a need for renewing laboratory equipment remains.

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

Factual situation

The study programme results are grouped to areas (1. knowledge and skills, 2. engineering analysis, 3. engineering design, 4. research, 5. engineering activities, and 6. personal/transferable skills), which are associated with the SP modules contributing to the achievement of each result in the matrix of relationship. Most of the general engineering and university subjects (Mathematics, Physics, Chemistry, Information Technologies, and Philosophy) are scheduled in the first part of the study plan. Electrical engineering and automation related subjects gradually increase in the upper semesters of the SP. Nevertheless, some specific electrical engineering study field modules are already included in the first semester (Metrology and Experimental Techniques), in the second semester (Analog and Digital Circuits), and the third semester (Synthesis and Simulation of Electrical Circuits). Topics of Electrical engineering and automation fields are extensively covered by the compulsory and elective courses (electrical circuits, electronics, optoelectrical systems, apparatus and sensors, microprocessors, electric drives, automatic control, electromagnetic field, programmable logic controllers, etc.). The SP also contains a relevant coverage of modules extending beyond electrical engineering subjects (Mechanics of Materials, Human safety and Electrical Safety, Economics, Environmental Engineering, Business and Engineering Projects Management etc.).

Expert judgement/indicator analysis

The panel thinks that the SP modules in the curriculum ensure consistent development of students' competences. However, the changing landscape of the labour market and needs of local industries expect traditional competences of electrical engineers to be supplemented with

knowledge of neighbouring engineering fields (information & communication, mechanics, etc.) and manufacturing processes and quality management. Balancing between comprehensive coverage of traditional EE disciplines and expectations of employees is a challenge that needs to be continuously addressed by the SP architects. It can also be disputed if universities have to mainly aim at responding to the needs of local industry or step ahead by educating students for global innovative technologies that could open new opportunities for the country's society and economy. The recently introduced new courses are mainly related to the maritime sector which is in line with KU strategy. It could be possible to enable EE students to select some additional elective courses from across the whole university. However, the strongest technology development trend in recent years has been related to artificial intelligence. None of the listed subjects directly address the critical skill. Although some AI topics may be part of the listed subjects or addressed in courses common to KU, this omittance does stand out. During the site interviews with alumni and social partners, sufficiency and relevance of theoretical knowledge provided by the SP was endorsed as well as graduates' abilities to learn operating specific industrial hardware systems within 6 to 9 months.

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

Factual situation

An opportunity for students to personalise the SP structure is supported by alternative and freely chosen study subjects, practice, projects, course work, and final thesis topic. It is said in the Self Evaluation Report (SER) that up to 31.7% of SP content can be personalised. There are 5 elective general university subjects embedded in the curriculum (semester 1-5). From semester 5, EE students are offered a range of EE courses for specialisation. The SP personalization opportunities also open the possibility to finish the SP ahead of time.

Expert judgement/indicator analysis

Personalization opportunities in the SP planning seems sufficient and coherent with the intended learning outcomes. It was confirmed during the on-site interviews that due to the limited number of students in the SP, maintaining a long list of alternative courses is not cost effective.

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

Factual situation

Final thesis (FT) topics can originate from teaching staff, social partners, or a student himself. The summary of the group of topics reveal that they were mainly attributed to control systems and robotics, electrical and electrical devices and systems, and electronics. The quality of FT is assessed by FT Defence Commission which judges regarding the listed criteria, such as reliability of the methods and results obtained, degree of solution of the aim, validity of conclusions, their theoretical and practical significance, presentation, and defence of the work, etc. FT defended by the SP graduates typically include state-of-the-art overview, engineering analysis, calculation and designing, conclusions, followed by a list of references. It is evident

from the (2020-2022) list of FT's that most of them target design of electrical or electronic systems.

Expert judgement/indicator analysis

The diversity of FT topics strongly correlate with the field of electrical engineering and the content covers many engineering subjects taught in the SP. It was noted in the previous evaluation. However, many of the theses reviewed by the panel lack description of the physical testing or verification by simulation designed electrical systems. In the list of FTs supplied with the current SER, about half of the works seem to have carried out simulation or experimental investigations, which is reasonable considering that some FTs can have a more theoretical or qualitative content. However, systematic simulation and testing skills can and should be developed across the education system. A programme level plan for allocating these skills to different subjects could be articulated. The implementation of such an approach would bring the FTs to the next quality level and closer to the real-life engineering projects.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The Electrical Engineering (EE) Study Programme (SP) at Klaipeda University (KU) aims at addressing the needs and development strategy of the labour market of Western Lithuania region.

2. The learning outcomes of SP are arranged according to the recommendations of European Network for Accreditation of Engineering Education (EUR ACE) including all major courses for offering the qualification needed by domestic industry like industrial communication networks and robotics applications, designing, modelling, and experimental verification methodologies of automated control, etc.

3. KU is advertising itself as a multidisciplinary educational institution with stronger focus on marine sciences and studies in its strategy.

4. The learning process combines the individual and teamwork solutions for contact and remote teaching and study cases including lectures, exercises, and laboratory works.

(2) Weaknesses:

1. The described and publicly advertised learning outcomes of EE SP are not explicitly bound to any maritime/coastal specific technologies (today only several elective courses of the SP are linked to maritime technologies).

2. The strongest technology development trend in recent years has been related to artificial intelligence and this trend is not visible in the existing SP of EE.

Follow up on recommendations from the 2021 evaluation for this area:

R1: Align the electrical engineering study programme with Klaipeda University's strategy aiming to head towards maritime technologies.

- The programme has strengthened the alignment, although primarily with the introduction of some elective courses that address electrical systems used in the maritime context.

R2: Develop a plan for remote studies in the pandemics causing restrictions.

- This has been carried out.

R3: Purify content of elective modules to avoid overlapping topics and ensure module titles alignment with the topics addressed in the curriculum.

- This has been carried out.

R4: Stimulate addressing of testing and simulation phases of the engineering design process in final thesis reporting.

- This is hard to evaluate fully, due to lacking inspection of theses. But the SER states that 3 of 6 current FTs have such elements. which is reasonable.

Recommendations from this evaluation for this area:

- R1-R3 seems adequately addressed.

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.

Factual situation

HEI research activities involving participation in international research and study projects, industrial projects are clearly visible from SER. Teachers of the SP focus on electric transport (including marine vehicles) and energy efficiency topics in research projects. KU was graded as "satisfactory research at the national level" by experts in 2018 evaluating university research and experimental development (R&D) activities. Research projects in the last five years are multidisciplinary and strongly related to the study field. The SP and recent research activities correlate quite well.

Expert judgement/indicator analysis

Participation of the key personnel in scientific projects and activities is clear from information provided in SER. Nevertheless, the extent of engagement of teachers of SP in research activities looks somewhat low, scientific papers publishing rate is low in total as well as in terms of publications per year per person. Despite the multidisciplinary nature of recent research, the visibility of achievements in the field of evaluation (EE) is critical to ensure a sufficient relationship between research activities and the content of the FS. Attendance and presentation of research results at international scientific events, conferences, workshops, congresses, etc. organised by the leading organisations in the EE field, publishing papers in high level journals, preferably extending cooperation with authors from other local and foreign institutions is mandatory keeping in mind the expectations to university level FS. Though the research quality

is sufficient to the opinion of the panel, its long-term sustainability is in danger without attracting more staff and broadening the research coverage in the field of EE. Some recent recruitments have brought in competence in robotics and PLC which are central for the field of EE..

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

Factual situation

Research activities at KU Electrical and Electronics Engineering field was assessed in 2018 concluding that the scientific achievements are satisfactory at the national level. It was also found out that scientific projects are highly multidisciplinary and rather difficult to attribute to only the Electrical Engineering field. The SER refers to the strategic documents of KU when identifying key areas of the latest developments in science and technology. Energy efficiency, decarburization, digital technologies, green ports, marine equipment, renewable energy, etc. are the areas relevant for the field of electrical engineering. Recently introduced elective courses align with KU's strategy (maritime focus), other topics with high development speed (e.g. internet of things). Topics of final theses provided with SER confirm that many of them target hot fields in electrical engineering. To mention a few, these are related to effective photovoltaic power systems, design of electric vehicles, automation of production lines, electrical systems of marine boats, street lighting control, etc.

Expert judgement/indicator analysis

Though SER has confirmed a good understanding of recent developments in the field by designers of the SP, the addressing of them in study modules is seen as rather abrupt. Titles of SP modules look relevant for the field. Final thesis defended by graduates address recent activities in the field of EE quite well. KU involvement in EU CONEXUS Alliance for smart urban coastal development has a potential to positively impact HEI's involvement in cooperation with European universities in the field of education and research. It is notable though that AI and/or data science was not mentioned in the discussion of the curriculum.

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

Factual situation

Several good examples of student involvement in research activities of the department are mentioned in the SER: For example, students were involved in container handling systems and electric bus development projects. During the on-site meeting with the SP students, the impression was that they are aware of the opportunities of involvement in scientific activities of the department, and some also embraced the opportunity.

Expert judgement/indicator analysis

The conditions for students' involvement in research activities at the University and the department seems good to the opinion of the panel. The SER mentions, as noted above, several good examples. The panel did not receive any students' opinion regarding the attitude towards

scientific research. In real numbers, the number of students who participate in research activities is low, but, considering the low number of students satisfactory or even good.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The R&D activities of the SP teachers focus on electric transport (including marine vehicles) and energy efficiency topics in research projects (evaluated positively on national level in 2018). Research projects in the last five years are multidisciplinary and strongly related to the study field.

2. The students' involvement in research activities of the department is well developed and the majority approaches are focussed on devilment of practical solutions (e.g., container handling systems, electric bus development, etc.).

(2) Weaknesses:

1. Despite the multidisciplinary nature of recent research approaches, the international visibility of achievements in the field is still low. Publishing papers in high level journals, preferably extending cooperation with authors from other local and foreign institutions, happens rarely.

2. The possibilities for PhD studies at KU is limited and needs urgent growth in the near future.

Follow up on recommendations from the 2021 evaluation for this area:

R5: Take actions to intensify research activities in the field of electrical engineering, mainly by ensuring broader engagement of the study program teachers and build plans for attracting more research active staff.

- Two EU-funded started in 2023 and three new faculty have started/are starting in 2024. This has been carried out.

R6: Review main references of all study modules and strengthen the link between latest developments in the science and technology field of electrical engineering and content of modules.

- The review is being carried out annually and several new courses related to "hot" and/or KU strategy have been developed. This has been carried out.

R7: Explore the reasons for moderate motivation of students to contribute to research activities of the department and plan measures on how to inspire their involvement.

- This is a somewhat unclear recommendation: It would be difficult to draw firm conclusions given the small number of students. The programme offers a good number of options, though, and they have "explored the reasons" etc.

Recommendations from this evaluation for this area:

- R5-R7 seems adequately addressed.

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

Factual situation

Admission to first cycle (undergraduate) studies at Klaipeda University (KU) in Lithuania, as well as other Lithuanian higher education institutions, follows a structured and regulated process that caters to both local (Lithuanian and EU) and international (third country) students. For Lithuanian and EU citizens eligible for state-funded study places, the admission process is governed by a common procedure managed through the Association of Lithuanian Higher Education Institutions for the organisation of common admission (LAMA BPO). This organisation acts under the authorization of the Ministry of Education, Science and Sports of the Republic of Lithuania and facilitates admissions via a unified application form within its system.

Expert judgement/indicator analysis

The program faces challenges in both attracting and retaining students, despite its strategic efforts to enhance appeal and accessibility. The admission data from 2020 to 2023 reflects a consistent number of applicants, with a notable absence of admissions in 2022 due to insufficient applications meeting the competitive score threshold of 5.4. This scenario underscores a broader trend affecting engineering programs, where regional dynamics see potential students relocating to larger cities for education, thus impacting KU's enrolment.

The competitive score criteria, focusing only on those exceeding the minimum of 5.4, alongside the division between state-supported and self-paid spots, indicate a rigorous selection process. However, the fluctuation in the number of first-priority applicants and the varied competitive scores across years suggest that the program might benefit from a more nuanced admission strategy. This could include outreach and engagement initiatives targeted at local students and a re-evaluation of competitive score thresholds to balance quality with inclusivity. However, if the student pays for the studies, he has a possibility to be transferred to a state-supported place.

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

Factual situation

Klaipeda University has established protocols for recognizing qualifications from abroad, partial studies, and prior learning outside formal education, aligned with the European Credit Transfer System (ECTS) and detailed in university regulations. Decisions on crediting foreign study results are made by academic heads and validated by the dean of the Faculty of Mathematics, Technology, and Natural Sciences (FMTNS). The process includes agreements for study periods abroad and a rigorous evaluation for transferring these credits to KU's programs.

Additionally, KU recognizes up to 50% of program credits for competencies gained through informal and self-education, evaluated by dedicated commissions.

Expert judgement/indicator analysis

KU's approach to recognizing foreign qualifications and non-formal learning is commendable for its adherence to European standards and its comprehensive evaluation process. This system enhances student mobility and acknowledges diverse educational backgrounds. However, the effectiveness of these procedures relies on transparent application and clear communication with stakeholders. Ensuring the objective assessment of non-formal learning and continuous improvement in evaluation practices is essential for maintaining the integrity and inclusivity of KU's academic programs.

3.3.3. Evaluation of conditions for ensuring academic mobility of students

Factual situation

Klaipeda University (KU) has adapted its approach to managing the Erasmus+ programme, transitioning from centrally signed bilateral cooperation agreements to faculty, department, and program head-initiated agreements. This shift accommodates the growing mobility of teachers and the introduction of Erasmus+ internships, ensuring a match between study programs and subjects taught abroad. With 216 cooperation agreements in various fields, KU creates favourable conditions for students to credit their studies or practice abroad. Information about mobility opportunities is disseminated through seminars, social media, the KU website, and direct communication from departments. Selection contests for Erasmus+ studies and internships are held twice annually, with an additional tender in exceptional cases. Despite the encouragement of mobility and additional financial support for participants, student activity in the Erasmus+ program is influenced by concerns over grade impact, employment commitments, and external factors like the Covid-19 pandemic and geopolitical issues. The new Erasmus+ program period (2021-2027) introduces more flexible conditions, combining virtual and physical mobility.

Expert judgement/indicator analysis

KU's proactive and decentralised approach to managing Erasmus+ agreements reflect an effective strategy to enhance academic mobility, catering to the specific needs and interests of its academic community. This flexibility, coupled with comprehensive support and information dissemination, positions KU as a supportive environment for international academic experiences. However, the university faces challenges in maximising student participation, attributed to concerns over academic performance, work commitments, and external uncertainties. The introduction of more flexible mobility options under the new Erasmus+ period is a commendable step towards addressing these concerns, potentially increasing participation rates. Even though the self-evaluation report states that some students do not want to participate in Erasmus studies due to the language barrier, students gave different reasons, such as: students are motivated in KU, and do not want to leave university for the whole semester. To add more, students praised short term Erasmus studies that had been participating. To further boost student and staff engagement in Erasmus+ activities, KU could

explore additional support mechanisms, such as preparatory language courses, flexible study arrangements, and enhanced communication on the tangible benefits of mobility experiences.

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.

Factual situation

The assessment of support provided to students in their academic journey involves examining the comprehensiveness and impact of academic, financial, social, psychological, and personal assistance mechanisms in place. This encompasses evaluating the availability and accessibility of resources such as tutoring and mentoring programs for academic support, scholarships and financial aid for economic assistance, social integration initiatives like clubs and societies, counselling services for psychological well-being, and personalised guidance for navigating personal challenges. The effectiveness of these support structures is critical in fostering an environment conducive to learning, personal development, and well-being, ensuring students have the resources they need to succeed academically and personally.

Expert judgement/indicator analysis

The effectiveness of all the above-mentioned support systems can be measured through student satisfaction, academic performance, retention rates, and graduation outcomes. During the communication with alumni and students it was mentioned that students are highly satisfied with the courses, knowledge, and cooperation with social partners and additional activities, such as sports. Moreover, student counselling significantly contributes to a good environment and cooperation between students and teachers. Continuous assessment and adaptation of these support services are essential in meeting the evolving needs of students, enhancing their academic journey, and preparing them for success beyond their studies. Students marked that they are planning further studies in Master as well as PhD. This could also help for future alumni representation of the study field.

3.3.5 Evaluation of the sufficiency of study information and student counselling

Factual situation

Student counselling begins in the first week of studies at KU, with introductory lectures hosted by the faculty at the onset of each semester. Additionally, curators are appointed to assist students in engaging with the various activities within the KU community. Career guidance is readily available through dedicated career counsellors and program lecturers. Detailed study information is effectively disseminated to students through the academic information system and virtual learning platforms, supplemented by administrative support from the faculty. Furthermore, opportunities for academic mobility are regularly promoted and advertised each semester.

Expert judgement/indicator analysis

Student counselling significantly contributes to a good environment and cooperation between students and teachers. Continuous assessment and adaptation of these support services are essential in meeting the evolving needs of students, enhancing their academic journey, and preparing them for success beyond their studies. The survey of both students and alumni

agrees, that information about studies are sufficient and student counselling are working efficiently.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Different financial support tools for students.
2. Wide possibilities to apply to Erasmus+ Studies.
3. Very positive feedback from the students about communication and support from administration.

(2) Weaknesses:

1. This comment is no decisive and strong shortcuts from the point of view of KU actions. It is like a *force majeure* situation whatever the university does or plans to do. But the low number of students applying to the study programme and low mobility numbers, despite the availability of possibilities, is fact.

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 us to consider the needs of the students and enable them to achieve the intended learning outcomes.

Factual situation

Every study module description includes methods of studying, amount of independent study hours, weeks for necessary submissions, assessment, and cumulative score. Lectures, exercises, problem solving, laboratory works and report preparation, individual consultations, seminars, literature analysis, use of specific software, excursions to companies are the teaching methods applied in the SP. The needs of students are served by providing them with opportunities to choose topics for individual tasks and presentations, course projects, final thesis, practice, elective modules. Course projects are used to develop skills of working in teams. Assessment methods used in the SP include written and oral exams, tests, colloquia, laboratory works, course projects, final thesis defence. According to Study Regulations of KU, postponing or advancing time of work defences and exam sessions can be granted. Graduates can continue to study for a master's degree at KU and other universities in Vilnius or Kaunas cities. The program duration is 4 years of full-time studies.

Expert judgement/indicator analysis

The panel assumes that the teaching and learning process is suitable for the achievement of the intended learning outcomes. Specific needs of students can be related to their field of interest or due to difficulties in achieving learning outcomes. The first is well addressed by allowing you to choose the topic of interest for course projects, individual tasks, presentations, and final thesis. Also, ten elective courses can be chosen. The list of modules for choosing elective courses

is adjusted to the intended learning outcomes of the SP. Students that are lagging for some reason are provided ample support to catch up. In general, the programme offers a wide range of support to help students manage their studies.

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

Factual situation

KU maintains various facilities that are adapted for students with mobility, visual or hearing impairments. For example, elevators in buildings, toilets for people with special needs, programs for text translation to audio in the library, special computer peripherals for people with motoric and seeing problems (printers, magnifiers, keyboards, etc.). The KU website has a version for visually impaired people. Most of the auditorium and laboratories used in the Electrical engineering study program are on the 4th floor of the building and cannot be reached by people using special wheelchairs. Nevertheless, options for bringing necessary equipment to the ground floor are considered. KU owned dormitories are available for the students. The priority to rent a dormitory is given to the socially vulnerable groups. The KU website says that some rooms in dormitories are adapted for students with movement disabilities.

Expert judgement/indicator analysis

In the opinion of the experts conditions for people with special needs are adequate, except for wheelchair access. However, over the last 10 years, no students with disabilities were enrolled in the EE programme. Therefore, insufficient conditions for their support were not actualized.

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.

Factual situation

Collection of the SP feedback is regulated by procedures approved by the Rector of KU in 2019. The feedback concerning separate study modules, internships, and opinion of graduates is acquired periodically. The administrator of the faculty is responsible for organising surveys. Graduates' surveys are organised every three years. Feedback results are analysed by the Study Committee of Electrical engineering SP. Improvements of study quality based on the findings from surveys include introduction of new subjects and revision of existing (five new and 8 revised subjects are mentioned in the SER), topics, and laboratory works. In addition to that, the feedback results are influencing teachers' certification and competition. There are several measures in place to help students plan and complete their studies.

Expert judgement/indicator analysis

The drop-out rate of students is typically high in engineering studies. The SER provides numbers of admitted and graduating students over 2020-2021. Since students admitted in 2020 students graduate in 2024, the drop-out rate is not possible to fully assess from Table 4.1. However, the SER states that 80% of full-time students and 50% of part-time students complete their studies. The reasons for higher drop-out for part-time students are, according to the SER, the time conflict between work and study occupations. The effectiveness of the measures for

monitoring of student progress during a semester and to assist them in dealing with delays or non-achieved results are not analysed in the SER.

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

Factual situation

Surveys are conducted annually to collect feedback from students about the SP and quality of studies. The gathered information is used to improve the programme and individual modules. It seems that self-assessment and study planning are discussed individually between a teacher of the module and a student. Survey results are communicated back to students and to DE and SFC.

Expert judgement/indicator analysis

Having in mind a small number of students enrolled in SP, the percentage of students taking part in surveys is critical to acquire statistically reliable data. It is not elaborated which techniques are applied to motivate students to respond. Participating in the interview, students confirmed that they are basically satisfied with the general procedures and support at KU. Most of the time they solve all rising issues by consulting their professors.

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

Factual situation

Graduates are employed immediately after the finish of studies or even during studies. Surveys conducted by Government Strategic Analysis Centre STRATA indicate that in the period 2020-2022 100% of KU Electrical engineering SP graduates were employed or continued studies. During on-site interviews, alumni and social partners acknowledged the need of a labour market for electrical engineers in the region. Industrial social partners confirmed that theoretical knowledge of graduates is good, while it takes some reasonable time (6 to 9 months) in companies to achieve practical skills demanded in various positions.

Expert judgement/indicator analysis

Very high employment figures of the SP graduates confirm the strong need for employees in the EE field in the Klaipeda region. However, about a third of the graduates' employment is classified as 'low-skilled'. It turned out during the on-site meeting with employers that usually a hired person starts at low positions (e.g. technician) but depending on personal features he or she progresses to a much higher position within 6 to 9 months. To get more accurate information about this, the university could track graduates over a longer time, e.g. by collecting data about graduates' positions after two or three years.

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

Factual situation

Policies to ensure academic integrity, tolerance and non-discrimination are outlined in KU Academic Ethics Code from 2015 highlighting academic cooperation and transparency. Students' personal data protection is well apprehended and stated in the Code.

Expert judgement/indicator analysis

The SER accounts for the responsibilities that a teacher must counteract and report on cases of suspected plagiarism although it is clarified what instruments are used to verify all student works against plagiarism.

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

Factual situation

Procedures for submission and examination of appeals and complaints are established at university level by internal study regulations from 2018. The procedures are well elaborated on in the SER. There were no written appeals filed in EE SP over the period of evaluation (2020-2023).

Expert judgement/indicator analysis

Availability of formal regulations to appeal and complain officially and direct cooperation of university personnel with students indicate effective management of possible disagreements.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The EE programme offers a wide range of support to help students to manage their studies.
2. Graduates are employed immediately after the finish of studies or even during studies. Government Strategic Analysis Centre STRATA indicated that in the period 2020-2022 100% of KU Electrical engineering SP graduates were employed or continued studies.

(2) Weaknesses:

1. There are no specific weaknesses needed to be specified.

Follow up on recommendations from the 2021 evaluation for this area:

R8: Monitoring of student study progress in the scope of one course, one semester, etc. along with options to deal with delays and failures to achieve intermediate results should be made clearer.

- This is carried out.

R9: Due to the small number of graduates, it is recommended to conduct their surveys annually. Also, a longer period graduate's career tracking is advisable.

- This is carried out.

R10: To get more accurate information about the types of positions graduates end up, the university could track them over a longer time, e.g. by collecting data about graduates' positions after two or three years.

- This is carried out or under development at KU level.

Recommendations from this evaluation for this area

- R8-R10 seems adequately addressed.

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.

Factual situation

In total 13 teachers are listed as contributing to the electrical engineering study program including two professors, five associate professors, and two lecturers with doctoral degrees. Six teachers are employed part-time. Years of pedagogical work experience of teachers ranges between 0 and 33 years, with 12 teachers having more than 10 years of experience. Eight teachers have more than 5 years of practical work experience in the field of taught subjects. Four new teachers (individuals) have been recruited, although some part time since 2021. Fields of research interests of the teachers and publishing of research works are related not only to the field of electrical engineering (electric machines and drives, mechatronic systems, electromagnetic fields, renewable energy, green transport) but also spans neighbouring engineering fields (IT systems, technological process, modelling mechanical systems). Didactic materials prepared by the SP teachers over the last five years are not reported. There are means in place to encourage EU mobility for teachers and financial provisions for enabling teachers to spend time on competence development.

Expert judgement/indicator analysis

Qualification and competences of key teachers conducting the SP are undoubted, but the number of teachers responsible for EE field subjects' implementation is low considering the extent of their contribution to the SP. Though only one person from the teaching staff is close to the retirement age, her contribution to the programme is dominant. The recent recruitments will help mitigate the situation although some are part time, and one is a PhD student. A handover plan is under development. The panel heard during the on-site meeting with the staff that the limited budget and small number of students makes attracting more teachers very challenging. Absence of PhD studies in the field of EE at KU is another factor making the hiring of teachers even more difficult. For some competence (such as AI) collaboration within KU can help resolve gaps. However, the precondition for being able to hire more teachers is paradoxically, the ability to acquire more research funding. Increased research funding will enable the hiring of additional faculty who can devote some time to teaching and to bring in

cutting edge competence. The department administration mentioned that they consider cooperation with universities from Vilnius and Kaunas.

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)

Factual situation

Academic mobility of teaching staff is implemented using Erasmus+ visits and meetings in the scope of research and education projects. Some teachers are active in academic mobility and engagement in research projects. In the period 2020-2023, 4 Erasmus teaching visits and 3 internships are reported. However, a significant part of the reporting period has been affected by Covid 19 and the Russia-Ukraine war.

Expert judgement/indicator analysis

Mobility of the study program lecturers is noticeably uneven and ranges from rather high to non-reported over the period of the last four years. Even though there were no complaints heard about insufficient conditions for teaching staff mobility during on-site interviews, the panel assumes that there could be various reasons for low involvement of part of the lecturers. Dominant reasons for low mobility in recent years include Covid 19 and Russia-Ukraine, but other reasons might be related to the lack of substitute lecturers during a mobility visit, insufficient motivation of teachers, their inability to combine visit schedules with the institutions of secondary employment (for part-time employed personnel). Therefore, the panel assumes that mobility conditions are only partially developed.

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

Factual situation

Staff qualification improvement is mainly achieved by participating in national and international projects. Also, some examples of attending professional development courses were seen. The participation in such activities has increased in recent years, from 59% of academic staff in 2016 to 85% in 2020. Also, the number of academic staff participating in international activities has increased. EU Structural funds were used in 2014-2020 to support staff development in research methodologies, teaching methods, foreign languages, etc.

Expert judgement/indicator analysis

A positive trend is evident with regards to staff involvement in academic exchange, projects, scientific research and publishing, participation in conferences and competences, although participation is heterogeneous. In absolute terms, the exchange and mobility rate of most of the teachers (despite a few exceptions) is rather low. The panel encourages the DE to continue to expand the exchange activities. There does not seem to be KPI's for research activity indicators, such as number of journal publications or external research income.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. The number of new young teachers with PhD or just obtaining the PhD degree are introduced into the study process (some of them already have the industrial background as well.

2. A positive trend is evident with regards to staff involvement in academic exchange, projects, scientific research and publishing, participation in conferences.

(2) Weaknesses:

1. The number of teachers responsible for EE field subjects' implementation is low considering the extent of their contribution to the SP.

2. Academic mobility of teaching staff is in absolute terms low, as the exchange and mobility rate of most of the teachers (despite a few exceptions) is rather low.

Follow up on recommendations from the 2021 evaluation for this area:

R11: Prepare plan for handover of key electrical engineering study courses and gradual replacement of teachers approaching retirement age.

- Several teachers (3-4) have been recruited and a handover plan is under development.

R12: Motivate and demand homogeneous involvement of staff in scientific research, academic mobility, competences related to the field of electrical engineering and academic mobility.

- Continue to encourage staff to apply for funding and engage in international research projects.

Recommendations from this evaluation for this area

- R11-R12 seem adequately addressed.

3.6. LEARNING FACILITIES AND RESOURCES

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

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

Factual situation

In 2014 the large modernization of existing laboratory infrastructure took place. Along this activity new laboratory equipment was acquainted. Also, the tasks of KU library were elaborated, which led to the renewal of literature and the access to different electronic databases was created (table 6.4. in SER) with open access to teaching staff and to students as well.

The availability of working places in basic labs for EE seems to be well developed (table 6.1. in SER). In 2009 it initiated the JURA project for modernization of laboratories. The modernization got the continuation for FMTNS students till 2025, which involves also the upgrading of the scientific laboratory on catamaran „Mintis" for the maritime electronics systems training.

There are many companies that accept students of Electrical Engineering for the internship. The list of the major contributors is given in table 6.3. in SER and seems to be well developed.

Learning facilities and resources seems sufficient for the achievement of SP outcomes. Students confirmed that they are satisfied with the equipment of laboratories. However, at the site visit it was visible that the equipment supply differs depending on courses. For example, the new labs like Robotics, etc, were well equipped with modern setups, but the more traditional courses like power electronics and some others were supported by the labs with older equipment. These labs need modernization soon.

Expert judgement/indicator analysis

The recommendation made by the previous evaluation team that KU does not have a subscription to important scientific databases in the field of EE has got a solution, because the permanent access IEEE Xplore Database has been developed. Unfortunately, this approach decreases the possibility of access to some other databases due to the high fee for use of IEEE Xplore considering overall limited budget availability.

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

Factual situation

The modernization of the robotics laboratory initiated at the time of previous evaluation time has been done. The criticism in the previous evaluation report that there was any of evidence of near and far future demands for investment in other laboratories, facilities or software not mentioned in SER, is still missing data in SER.

Expert judgement/indicator analysis

The previous report indicated two shortcomings concerning the supporting staff in labs and the situation of lab virtualization activities. The leadership of the department has fixed the problem and some first attempts (use for example of PhD students) have been elaborated. The possibility to increase the virtualization level for wider remote access to practical exercises is however not changed due to limited volume of available financial sources.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Generally well-developed study environment.
2. Existing development plan of infrastructure up to 2025.
3. Upgraded data bases of open access for students and staff.
4. Improvements in infrastructure (buildings) and taken actions (availability of interpreters and visualisation tools) for disabled people.

(2) Weaknesses:

1. This comment is not a real weakness, it is only the comment on situation awareness, because no decisive shortcuts have been discovered. The indicated two weaknesses in the previous evaluation report have been clearly perceived by the leadership of the department. Therefore, it seems that in case of opening of new additional financial sources, the positive approach will be achieved immediately.

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.

Factual situation

The quality assurance system is established at KU and adheres to ISO 9000:2015 standard. The SER gives the evidence and confirms that as at the previous evaluation a wide spectrum of periodic activities (surveys, questionnaires, meetings, interviews, invitations to qualification commissions, etc.) for the study process and demands of students and social partners' data are elaborated. Quality assurance responsibilities are distributed among the Faculty Dean and Vice-Rector for Studies, Committee of Electrical and Electronics Engineering Study Area (SFC), Head of the Study Program, KU Study Quality Commission, and Faculty Council.

Expert judgement/indicator analysis

Traditional quality assurance framework widely used in Lithuanian HEIs is adapted at KU. The control of implementation and follow up estimation of measures taken to improve quality are adequately described.

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

Factual situation

Students participate in internal quality assurance by responding to surveys and questionnaires about study subjects and the SP. Students and representatives from companies are included in the Committee of Electrical and Electronics Engineering Study Area and participate in making decisions for quality improvement.

The Student Union is organising meetings and discussions to bring quality issues. The SER states that the quality of lecturers seems to have improved, as stated on page 39 of SER (the evaluation rate of lecturers is between 4.18 and 4.74).

Expert judgement/indicator analysis

The involvement of industrial partners in the SP evaluation process seems to be slightly improved compared to previous evaluation process considering the involvement of Baltic Investors Forum together with Klaipeda ID into discussions. Unfortunately, none of the representatives of companies whom the evaluation team met, were involved in development actions of EE SP. However, all of them stated at the face-to-face meeting on February 12 that the quality of graduates they have hired from KU so long have been on a good quality level and they believe that the Study Program Electrical Engineering allows the youngsters to develop themselves into educated specialists corresponding well to industry needs.

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

Expert judgement/indicator analysis

The major important data and information about the studies, their evaluation process, improvement proposal and actions, as well as the developments and future intentions related information are openly accessible. The process is summarised publicly and conducted orally to students, lecturers, and administration at joint meetings.

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.

Expert judgement/indicator analysis

SER states that KU does not use the data of the National Student Survey. Unfortunately, the reason is not explained in the SER. However, the evaluation of the students and graduates seems to be on a well-developed level. The accessibility to different channels which are available are continuously elaborated, but the modernization of access channels could be improved (e.g., implementation of new technologies, etc.) also in the future.

Strengths and weaknesses of this evaluation area:

(1) Strengths:

1. Standardised quality assurance system giving the confirming a wide spectrum of periodic activities.
2. Well distributed quality assurance responsibilities among the Faculty Dean and Vice-Rector for Studies, Committee of Electrical and Electronics Engineering Study Area (SFC), Head of the Study Program, KU Study Quality Commission, and Faculty Council.

(2) Weaknesses:

1. No decisive and strong shortcuts have been discovered. However, it seems that efforts made by the university to get answers on surveys seems to be staid at the similar level that was stated in the previous evaluation report. Also, the modernization of access channels must be improved (e.g., implementation of new AI based technologies, etc.) in the future.

IV. EXAMPLES OF EXCELLENCE

Core definition: Excellence means exhibiting exceptional characteristics that are, implicitly, not achievable by all.

If, according to the expert panel, there are no such exceptional characteristics demonstrated by the HEI in this study field, this section should be skipped / left empty.

V. RECOMMENDATIONS

Evaluation Area	Recommendations for the Evaluation Area (study cycle)
Intended and achieved learning outcomes and curriculum	Continue to develop and improve on mechanisms for attracting more students to the field of electrical engineering. Develop and deploy a plan for teaching and learning of artificial intelligence knowledge, methods, tools, and ethics in the programme.
Links between science (art) and studies	Continue to increase the number of externally funded research collaborations. Develop opportunities for EE students to learn AI as part of the programme (as mentioned above).
Student admission and support	The general strategy of KU to attract the youngsters for engineering specialities (especially for EE) needs qualitative reformulation improving the contacts with local- and social media putting the focus on target groups already from the lower education levels (e.g., ground schools, etc.).
Teaching and learning, student performance and graduate employment	No recommendation.
Teaching staff	Collaborate with other departments within KU to form and staff courses that are desirable within the programme but outside of the current staff's interests and competence. Leverage research hiring and funding to also help with teaching staffing.
Learning facilities and resources	Long term development plan for the infrastructure improvement together with the financing plan for EE SP should be developed, agreed and approved on the university council level.
Study quality management and public information	Plans for virtualization or remote operation of laboratories to mitigate impact of quarantine caused restrictions on the achievement of learning outcomes should be designed and developed using new technologies, e.g., AI based solutions.

VI. SUMMARY

The developments made in KU along two years are visible considering the very short duration for implementations of all recommendations made by the evaluation team in 2021. Due to different weights of recommendations the most visible were the processes initiated in the field of improving the quality of the teaching staff, where the last evaluation team granted the situation with the mark 2. The reasons for this development can be concluded first from the change of the leadership at faculty and department level with much better positive attitude to new development of human resources, secondly the opening the PhD studies availability at KU, and third the involvement of youngsters who are active in the field of teaching and business (a visible number of young teachers have been created and running their own companies). But the development of the teaching staff remains the main field which needs more attention also in the future.

The rest of the recommendations made two years ago have been all elaborated by KU. Some of developments are already in actions, e.g., new labs in use for SP EE, but some of them are still in planning stadium, e.g., improvement of remote access of the students to practical activities, considering that two years period is a bit too short to see real results in all fields to be improved.

Main positive and negative quality aspects of each study field evaluation area at the Klaipeda University EE SP.

Positive moments:

1. Learning facilities and resources are developed under the existing strategy plan.
2. Study quality management and public information systems are generally well developed and in use.
3. Student admission and support is functioning effectively.
4. Teaching and learning, student performance and graduate employment seems to be adequate to available resources and circumstances.
5. Intended and achieved learning outcomes and curriculum are well developed. However, some new courses like battery technologies and AI approaches would be nice to have been implemented in the future.

Need for improvements:

1. Teaching staff situation needs permanent attention, and the involvement of new manpower would be important.
2. Links between science (art) and studies must be better elaborated and improved to increase the visibility of R&D activities in the teaching process in the future.

Expert panel chairperson signature:
Prof. dr. Toomas Rang