STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

ELECTRONICS ENGINEERING FIELD OF STUDY

at Lietuvos inžinerijos kolegija

EXTERNAL EVALUATION REPORT

Expert panel:

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2. Academic member: Prof. Yevhen Yashchyshyn
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4. Social partner representative: Šarūnas Venslavas
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SKVC coordinator: Gabrielė Čėplaitė

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I. INTRODUCTION

1.1. OUTLINE OF THE EVALUATION PROCESS

The field of study evaluations in Lithuanian higher education institutions (HEIs) are based on the following:

- Procedure for the External Evaluation and Accreditation of Studies, Evaluation Areas and Indicators, approved by the Minister of Education, Science, and Sport;
- Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (SKVC);
- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

The evaluation is intended to support HEIs in continuous enhancement of their study process and to inform the public about the quality of programmes within the field of study.

The object of the evaluation is all programmes within a specific field of study. A separate assessment is given for each study cycle.

The evaluation process consists of the following main steps: 1) Self-evaluation and production of a self-evaluation report (SER) prepared by an HEI; 2) A site visit by the review panel to the HEI; 3) The external evaluation report (EER) production by the review panel; 4) EER review by the HEI; 5) EER review by the Study Evaluation Committee; 6) Accreditation decision taken by SKVC; 7) Appeal procedure (if initiated by the HEI); 8) Follow-up activities, which include the production of a Progress Report on Recommendations Implementation by the HEI.

The main outcome of the evaluation process is the EER prepared by the review panel. The HEI is forwarded the draft EER for feedback on any factual mistakes. The draft report is then subject to approval by the external Study Evaluation Committee, operating under SKVC. Once approved, the EER serves as the basis for an accreditation decision. If an HEI disagrees with the outcome of the evaluation, it can file an appeal.On the basis of the approved EER, SKVC takes one of the following accreditation decisions:

- **Accreditation granted for 7 years** if all evaluation areas are evaluated as exceptional (5 points), very good (4 points), or good (3 points).
- **Accreditation granted for 3 years** if at least one evaluation area is evaluated as satisfactory (2 points).
- **Not accredited** if at least one evaluation area is evaluated as unsatisfactory (1 point).

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

- To be accredited for the remaining term until the next evaluation of the field of study 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. REVIEW PANEL

The review panel was appointed in accordance with the Reviewer Selection Procedure as approved by the Director of SKVC.

The composition of the review panel was as follows:

1. Panel chair: Prof. László T. Kóczy, DSc, Professor at Budapest University of Technology and Economics and Member of the Hungarian Higher Education Accreditation Committee (HAC);
2. Academic member: Prof. Yevhen Yashchyshyn, DSc, Professor at Warsaw University of Technology, deputy Director for Research of Institute of Radioelectronics and Multimedia Technology;
3. Academic member: Dr. Olev Märten, Senior Research Fellow at Tallinn University of Technology;
4. Social partner representative: Šarūnas Venslavas, "Trina Solar (Schweiz) AG“ Utilities Manager for the Baltics;
5. Student representative: Gabija Šliužaitė, Vilnius Gediminas Technical University, 3rd year student of the first-cycle study program "Industrial and Product Design", member of the Lithuanian Students' Union.

1.3. SITE VISIT

The site visit was organised on 24 April, 2025 onsite.

Meetings with the following members of the staff and stakeholders took place during the site visit:

- Senior management and administrative staff of the faculty(ies);
- Team responsible for preparation of the SER;
- Teaching staff;
- Students;
- Alumni and social stakeholders including employers.

There was a need for translation during the meeting with some of the teachers.

1.4. BACKGROUND OF THE REVIEW

Overview of the HEI

The first stage of historical development is the beginning of technical sciences in Lithuania. In 1920, by a resolution of the Government of Lithuania, the Higher Technical School - ATM was established within the system of the Ministry of Transport. The former head of the Bologoja Technical School, Eng. Julijonas Gravrogkas, was appointed as the first director. The purpose of the school is to prepare secondary technical education specialists in construction, mechanics and electrical engineering, initially of a broader profile, so that they could work in various areas of the country's economy, with the intention of later expanding and bringing the school's status closer to similar schools in Western European countries. The Higher Technical School became a school that:

- gave rise to many technical specialties - it was here that specialists in seamanship, railway engineering, mechanics, communication construction, electrical energy, and telecommunications architecture began to be trained;
- gathered under its roof a large group of the best teachers and practicing specialists of the time who created training programs, plans, regulations, and wrote the first specialized textbooks in the Lithuanian language;
- educated enthusiastic students who became Lithuanian river hydrologists, constructors and testers of the first glider, the first radio amateurs, and publishers of the first radio magazine.

Thus, Lietuvos inžinerijos kolegija (LIK, hereafter often referred to as “College”) is a more than 100 year old HEI that was established motivated by the needs of independent Lithuania, its society and the labour market of those days, but continuously developed until today

Overview of the study field

The study field is one of the most important branches of engineering studies. Electronic engineering plays an important role in almost all applied sciences and engineering areas, including vehicular engineering, agriculture, medical and biological sciences, and many others, apart from the electronic engineering industry and science proper. The HEI has the goal to be one of the leading institutions in the Baltic region, due to its history, its leading role among the Lithuanian colleges teaching engineering fields, and its partnership connections with national and international companies in Lithuania, in the first line, in the Kaunas neighbourhood. It has connections also with KTU, one of the leading universities in the engineering sciences in whole Lithuania, and its partnership agreement with Schmalkalden University of Applied Sciences.

Previous external evaluations

The two programmes had been accredited since the start of these programmes (in 2002 and 2003, resp.), namely, the Electronics Engineering study programme in 2013, and the Motor Transport Electronic study programme in 2015.

Documents and information used in the review

The following documents and/or information have been requested/provided by the HEI before or during the site visit:

- *Self-evaluation report and its annexes*
- *Final theses*

Additional sources of information used by the review panel:

The following additional sources of information have been used by the review panel:

The scripts of the site visit conversations prepared by the panel members.

II. STUDY PROGRAMMES IN THE FIELD

First cycle/LTQF 6

Title of the study programme	**Motor Transport Electronics**	**Electronic Engineering**
State code	6533EX001	6531EX004
Type of study (college/university)	College	College
Mode of study (full time/part time) and nominal duration (in years)	Full-time, 3 years; Part-time, 4 years	Full-time, 3 years; Part-time, 4 years
Workload in ECTS	180	180
Award (degree and/or professional qualification)	Professional Bachelor in Engineering Sciences	Professional Bachelor in Engineering Sciences
Language of instruction	Lithuanian	Lithuanian
Admission requirements	Secondary Education	Secondary Education
First registration date	29 05 2003	30 08 2002
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	-	-

III. ASSESSMENT IN POINTS BY CYCLE AND EVALUATION AREAS

The **first cycle** of the Electronics Engineering field of study is given a **positive** evaluation.

No.	Evaluation Area	Evaluation points[1*]
1.	Study aims, learning outcomes and curriculum	3
2.	Links between scientific (or artistic) research and higher education	3
3.	Student admission and support	3
4.	Teaching and learning, student assessment, and graduate employment	4
5.	Teaching staff	3
6.	Learning facilities and resources	3
7.	Quality assurance and public information	3
	Total:	22

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

IV. STUDY FIELD ANALYSIS

AREA 1: STUDY AIMS, LEARNING OUTCOMES AND CURRICULUM

1.1.	Programmes are aligned with the country's economic and societal needs and the strategy of the HEI

FACTUAL SITUATION

1.1.1. Programme aims and learning outcomes are aligned with the needs of the society and/or the labour market

At LIK, students of Electronics Engineering may choose one of the following four specialisations: Design and Manufacturing of Electronic Equipment, Maintenance of Building Automation Systems; Automated Systems and Robotics; and Telecommunications. Students of Motor Transport Electronics can choose between Car Diagnostics, or Cargo Vehicle Diagnostics. The former is a wide enough scope to cover all relevant areas, while the second is very specialised, for the narrow field of vehicle diagnostics - obviously, as the result of the needs of the connected companies (social partners). Recent expectations towards more R&D activities by both the teachers and the students, as part of the study programme, and more computer programming and data analysis skills, which are expected by the government on one side, and by the employers on the other side, puts new challenges for the HEI. However, these new features have to be built in in the curriculum, as enhanced abilities for innovative work, and higher computer science knowledge and skills are needed in the jobs where the graduates are typically employed.

The aim of the Electronic Engineering study programme is to prepare analytically minded specialists in the field, who have sufficient knowledge of design principles, who are able to install and operate electronic devices, telecommunications networks, building automation systems (smart homes), and automated production and robotic systems, who are aware of all the specifics of standards and directives in these areas, and are able to lead a team of engineers or skilled workers, and organise the activities within companies in the electronics sector.

Both programmes have the aim of aligning with the Europe 2030 strategy, especially, the development of a knowledge and innovation based economy, and the promotion of resource-efficient production. This lays focus on the creation of a unified transport system within Europe, the installation of modern multimodal infrastructure networks, the transition to low-emission mobility, increased transport accessibility and reliability. The Motor Transport Electronics programme is especially important considering that the number of road vehicle operating companies in Lithuania is constantly growing; thus, the need for experts of vehicle maintenance, inspections of vehicle systems and components in order to identify possible defects or future repair needs is also increasing. It is also predicted that the Lithuanian electric vehicle market will intensively grow in the coming year.

The aim of the Motor Transport Electronics programme is similar in the sense that it prepares analytically minded automotive electronics specialists with knowledge of design principles, and the ability to implement, select and manage the appropriate electronic, diagnostic and repair equipment, carry out and lead the diagnostics of electronic and mechatronic systems in motor vehicles, and design technological work processes in the field. This latter programme is interdisciplinary, as: students acquire competencies both in Electronic Engineering (E09) and Transportation (Vehicle) Engineering (E12).

The connection to the labour market is especially strong with the companies UAB Teltonika, UAB Hella Lithuania, UAB Continental, UAB Elinta Motors, and the region of Kaunas is the location of Continental Automotive Lithuania, Hella Lithuania, Kitron Lietuva, Littelfuse LT, Axioma Servisas, Axioma Metering and Teltonika Networks, these companies forming the core of this industry in Lithuania. The need for electronic engineering specialists in these companies has been doubling or

tripling every year and is expected to grow even faster in the future, and about 2000 additional jobs for electronic engineering specialists will be created in the Kaunas-based companies alone. The College, along with Kaunas University of Technology, has been actively participating in the campaign “Future for Electronic Engineers”, in order to help young people discover careers in the field of electronic engineering. Several company networks offer considerable scholarships to students of both programmes, according to the SER, and the social partners’ representatives on site. Both students and the representatives of the employers have mentioned this, as a positive phenomenon, during the visit. In addition, in order to maintain the relevance of the study programmes of the field to the needs of the labour market, the aims and learning outcomes of the study programmes are reviewed together with representatives of the labour market during round table discussions organised by the College, according to SER. This fact was confirmed by the conversations led with the teaching staff and the stakeholders, as well, although it is less obvious, that the requests of the employers are always built in in the course updating procedure. Companies in the electronics industry nevertheless are actively involved in the study process, recommending the introduction of up-to-date topics to the curriculum, their experts delivering lectures on them, and organising company visits for the students.

The very close and positive connection with the stakeholder companies was not only described by the SER, but strongly confirmed by the company representatives and alumni present at the personal meeting with them.

The social partners also allow college students to use laboratories owned by companies so that students can work on their laboratory or final projects. From the interviews, it is clear to them that it is very important that LIK prepares the best possible student practitioners so that they can integrate into the work team in companies as quickly as possible.

It may be stated that the correspondence between study programmes and learning outcomes ensures for the students the accumulation of sufficient knowledge, cognitive abilities, and practical and transferable skills that can be applied in their professional activities. As the degree offered by LIK is Professional Bachelor, the stress is laid on practical, “hands on” knowledge that can be immediately used after graduation, and alumni reported about easily finding employment.

1.1.2. Programme aims and learning outcomes are aligned with the HEI’s mission, goals, and strategy

According to the SER, the mission of the College is to develop engineering competencies for the well-being of a smart society, in this particular area, electronic engineering competencies. Accordingly, the aim of LIK is to be a leader in technical studies in the Baltic region, actively sharing knowledge and contributing to the development of society and industry. In both specialisations, the College considers its mission to ensure learning outcomes that enable graduates acquire the competencies of an engineer-technologist and develop the ability for leadership, organisation and control of electronics production, including resource planning, maintenance of production equipment, the design and management of the production process, to solve problems in the technological production process, and suggest ways to improve production indicators. The qualification also gives the chances to become a manager or to set up one’s own business. The learning outcomes indeed ensure these goals of mission and strategy, according to the SER, and the findings at the site visit, confirmed both by the management and teaching staff, the employers and the graduates.

The strategic goals are to 1. Increasing efficiency - improving the quality of services (studies, non-formal education, and research development) and infrastructure, as well as optimising operating costs; and 2. Active development- revenue growth through the development of new services, the expansion of markets and the active enhancement of the image of the College. These goals are fulfilled in the general sense, even though there are several points, to be mentioned in the detailed report, which need further improvement and better alignment with the strategy.

Although the study programme of the College occupies a different niche compared to universities, according to the Descriptor of the Study Field of Engineering, the question may be raised, in what way does the College incorporate the novel results of research and development in the electronics field. Companies have a focus on immediately implementable development results, however, the graduates must also be prepared to be able to understand, flexibly adopt, and further develop the new scientific results relevant to their expertise. Neither the SER, nor the conversations with the teachers have given a clear reply to that question.

It can be summarised that the learning outcomes of the study field programmes have been formulated in accordance with the Descriptor of the Study Field of Engineering, approved by Order No. V-964 of the Minister of Education and Science of the Republic of Lithuania, further, the learning outcomes of the study field programmes have been updated in accordance with the Descriptor of the Study Field of Engineering approved by Order No. V-948 of the Minister of Education, Science and Sports of the Republic of Lithuania on 5 July 2023. Both study programmes have been developed and are continuously updated as necessary, in accordance with all the relevant legal and educational documents, and both programmes correspond to the requirements of the first cycle of higher education college studies, in their structure, contents and ECTS numbers.

ANALYSIS AND CONCLUSION (regarding 1.1.)

The graduates are quite well prepared for the needs of the labour market, even though the course contents need further updating according to the employers' needs. The strategic policy of the College is essentially appropriate, and fits Lithuanian and European long term tendencies, but this strategy must be further realised by the development of the course contents. As mentioned before, both study programmes have been developed and are continuously updated, in accordance with all the relevant legal and educational documents, and both programmes correspond to the requirements of the first cycle of higher education college studies. This is mainly evident by comparing the requests of the companies that were mentioned during the site visit, for more computer science and data analysis abilities of the graduates, and also by the expectations of them having a more developed ability for overviewing and, if necessary, leading a new company project. Nevertheless, updating the course contents must happen in more intensive and closer collaboration with the employers and social partners. Especially, more stressed computer science and data analysis contents in the programme is strongly recommended. These are fields which are more and more important in the electronics engineering area, and applying such skills has become an everyday activity of the employees in the field.

1.2.	Programmes comply with legal requirements, while curriculum design, curriculum, teaching/learning and assessment methods enable students to achieve study aims and learning outcomes

FACTUAL SITUATION

1.2.1. Programmes comply with legal requirements

Both programmes comply with the Law on Science and Studies of the Republic of Lithuania and the Descriptor of the Study Field of Engineering, further, with other necessary legal documents and both programmes correspond to the requirements of the first cycle of higher education college studies, in their structure, contents and ECTS numbers, which are in the sum, in both programmes 180 ECTS. The study plans of the field study programmes are presented and the compliance of the curriculum design with the legal requirements are substantiated. The compliance of the field study programme aims, intended learning outcomes, curriculum design, subjects and/or modules with the type, cycle and academic and/or professional requirements of studies, and the sufficiency of the study programme to ensure learning outcomes are substantiated.

The principles of composition of study credits correspond to the Study Regulation approved by the Academic Council of LIK, and similarly, the learning outcomes, student workload (including contact

hours (online and in person), project and individual task loads,are in accordance with the regulations. Further, the periodicity of review, that is happening throughout the academic year, but regularly, at the beginning of each academic year.
The composition of ECTS contents in both specialisations is as follows:

- General subjects of higher education college studies 15;
- Study field subjects, including 132;
- Subjects for deeper specialisation in the field 24;
- Elective/optional subjects 9;

which totals the requested 180, and its composition also corresponds to the requirements.

The study programmes were prepared in accordance with the following documents (according to SER)

- the Law on Science and Studies of the Republic of Lithuania;
- the Descriptor of the Study Field of Engineering;
- the EUR-ACE® Framework Standards and Guidelines;
- the Description of General Requirements of Study Implementation;
- the Lithuanian Qualifications Framework;
- the LIK Study Regulations;
- the Description of the Procedure for the Management of Study Programmes at LIK.

1.2.2. Programme aims, learning outcomes, teaching/learning and assessment methods are aligned

The aims and learning outcomes of both programmes are aligned with the learning outcomes of the subjects as well as teaching and assessment methods in accordance with the principles of constructive alignment.

The aims, structure and expected learning outcomes of the study field programmes correspond to the requirements of the first cycle of higher education college studies see above, as they have been formulated in such a way that, unlike studies at a research university, they are oriented towards the application of technological and scientific knowledge rather than the creation of new knowledge and technologies, and towards the implementation of projects and the management of technological processes rather than the design of such processes. In accordance with the provisions of the regulatory documents, the programmes of the study field comply with Level 6 of the European and Lithuanian Qualifications Framework, the credit structure corresponds to the structure of the ECTS credit, the didactic models and study methods, including assessment methods, are student centred and the study process is learning outcome oriented. The content of the study subjects listed in the study programme plan (Annex 2 to SER) enables students to acquire sufficient general, mathematical, physical and technological science knowledge and skills necessary for engineering activity and the use of technology in the globalised market environment. Studies in each subject are organised in such a way that the student has the opportunity to gain theoretical knowledge in lectures, perform practical and laboratory work, consult with teachers and study independently. Nevertheless, as requirements towards colleges have recently lain more stress on design, research, and development skills also for college graduates, it must be mentioned that no individual extracurricular student activities are offered, especially the training for being able to perform later applied research activities is missing, and students would need more computer and data analysis skills, according to unisonic opinion of the social partners and employers during the site visit. This need was also confirmed by the alumni who are already employed by these companies.

Teaching/learning happens by the studies in each subject being organised in such a way that the student has the opportunity to acquire theoretical knowledge during lectures, perform practical and laboratory work, consult with teachers and study independently. The learning outcomes of study subjects are achieved by applying active learning methods – lectures, demonstrations, problem-based learning, field trips, case studies, integrated lectures delivered by industry partners, etc. Practical training is organised in the form of practical tasks and laboratory work, seminars, discussions, and semester projects. The achievement of learning outcomes is

assessed in accordance with the Regulations of Passing Study Subjects. The knowledge, competencies and skills of students are evaluated continuously by using cumulative assessment. The choice of interim assessment tasks depends on the aims of the subject, expected learning outcomes and the scope of the subject; the final summative assessment of the learning outcomes achieved is carried out in the form of a final exam. The final grade consists of the grades received for the interim assessment tasks and the final examination. The procedure for assessing the learning outcomes in the subject is presented to the students in the description of each subject, and this description is accessible to the student at any time by means of the internet.

1.2.3. Curriculum ensures consistent development of student competences

The participation and positive remarks of the representatives of the labour market during the site visit ensure consistent development, in the frame of the evolution of knowledge directly connected with the production, maintenance and development going on in the companies. This factual statement is based on both the SER and the information obtained during the site visit (employers, graduates, students) However, little stress is laid on teaching how to train and improve innovative skills, needed by the employers.

Students targeting a certain future employer may receive scholarships from the give stakeholder that offers additional support for the motivated students.
It was also mentioned by several stakeholder representatives that increasing the course contents covering programming and data analysis skills would be advisable. (This happened despite the existence of the study field councils where staff and stakeholders regularly exchange their opinions on the study programme.)

1.2.4. Opportunities for students to personalise curriculum according to their personal learning goals and intended learning outcomes are ensured by the College measures (based on SER).

This is partly modified by the facts obtained during the site visit, as the students have little opportunity for extracurricular activities, and this way, to personalise their studies, according to their employment plans and the employers' expectations, and even those available, are in first line provided by the companies in close relation with the HEI, as it is mentioned in the SER, and also mentioned by some company representatives.These offer some additional possibilities according to their expectations for new employees. The students have an opportunity to choose an elective subject in their 3rd, 4th and 5th semester. This can be chosen freely and doesn't have to be similar to the degree modules. Extracurricular activities provided by LIK are mostly sports based, two of them are cars centric and there is a Lithuanian folk dance group. These opportunities can provide additional benefits in their studies.

Over the period of 2020-2023, a total of 44 students of the field have benefited from the possibility of studying on personalised study schedules. The number of students taking advantage of this option has increased significantly, indicating that the number of students combining studies and working in a business or production environment may bring synergies.

Some social partners may pay for a student's living expenses (dormitory or apartment rent and utility bills) and may additionally pay a monthly scholarship if the student agrees to work for a certain number of years in the company that sponsored him or her after graduation.These social partners offer scholarships to students who will be employed by them after graduation. Such students will align their project and final thesis work with the requests of the future employers, which allows personalised activities within the curriculum. In these cases, the project supervision is primarily done by the company experts. It would be advisable to involve the teaching staff members more intensively into such company offered project work, this way intensifying the scientific collaboration between the college and company staff, and allowing more space for personalised individual projects.

1.2.5. Final theses (applied projects) comply with the requirements for the field and cycle

The final theses comply with the requirements for the study field and the first cycle, especially, as this is a professional degree, and the theses discuss topics proposed by the (future) employers. The bachelor theses are typically works on topics offered by the companies, but these are elaborated in the last semester, when many of the students already work in the last semester/last year, parallelly with the study. A representative sample of final theses could be studied during the site visit, and the statements of SER were confirmed by looking into these works. The final theses are usually a continuation of the semester projects and research and development carried out by the students in the course of their studies, with the final thesis elaborating on the topic that the student has worked on during their studies.

The preparation of the final thesis and the formation of Degree Awarding Boards are regulated by the Description of the Procedure of Preparation, Defence and Evaluation of the Graduation Theses at LIK. The preparation of the thesis is organised and the progress of the thesis is supervised by the Head of the Study Programme. The Head of the Study Programme introduces the students to the Procedure of Preparation, Defence and Evaluation of the Graduation of Theses.

The student chooses a supervisor with at least a Masters or equivalent degree, for the thesis from a list provided by the Head of the Study Programme, if they fail to do so, the Head chooses one for each student. The preliminary thesis topics are approved at a meeting of the Study Programme Committee. Then, the thesis topics are published on the Academic Information System.

The student is responsible for the preparation, presentation, accuracy of facts and results, conclusions, and submission of the completed parts of the thesis to the supervisor in accordance with the deadlines set in the thesis preparation schedule. The students must submit the final thesis in electronic format to their supervisors for review. In the review, the supervisor gives a conclusion on the correspondence of the thesis to the requirements and its eligibility for public defence. The supervisor sends an electronic version of the written review to the student and submits the final thesis with feedback to the Head of the Study Programme The final thesis is defended in front of the Board of Internal Examiners before the meeting of the Degree Awarding Board. The Board of Internal Examiners is constituted and approved by the Study Programme Committee. The Chairperson of the Board of Internal Examiners submits to the Study Organisation Office an extract of the meeting minutes with the conclusions on the correspondence of the theses to the requirements and its eligibility for public defence in front of the Degree Awarding Board.

After the defence before the Board of Internal Examiners, the student is given a three-day deadline to revise the thesis. At the end of the deadline, the student presents the thesis to the Head of the Study Programme. Students whose final theses have been negatively evaluated by the Board of Internal Examiners incur an academic debt. The student is removed from the student list but may return to continue his/her studies in the spring semester.

Students who fail to defend their thesis at the meeting of the Degree Awarding Board may, by order of the Director, be allowed to defend their thesis after one year at the earliest.

ANALYSIS AND CONCLUSION (regarding 1.2.)

Both programmes comply with the legal requirements, as mentioned above, the total number and the distribution of ECTS among the main groups of study subjects is correct. The content is essentially appropriate, although continuous updating is necessary, what happens regularly in the frame of the Study Committee meetings. The course contents and the topics of the final theses give evidence of the fulfillment of the basic aims formulated in the strategies of the College, and the social partners have expressed their being satisfied with the main skills and knowledge of the graduates employed at them.
The opportunities for personalising the curriculum are given, and an increasing number of students are indeed using this opportunity. In the personalised curriculum, employers play an important role,

especially, as final year students often work parallelly with their studies, and are given individual tasks.

AREA 1: CONCLUSIONS

AREA 1	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

COMMENDATIONS

1. The continuous collaboration and round table style Study Committee discussions with the social partners,especially the employers of the graduates, further the scholarship system with involvement of the labour market actors is a good practice;
2. Certain social partners may pay for a student's living expenses (dormitory or apartment rent and utility bills) and may additionally pay a monthly scholarship if the student agrees to work for a certain number of years in the company that sponsored him or her after graduation.

RECOMMENDATIONS

To address shortcomings

1. For interested students more personalised projects should be offered, also under the guidance and supervision of teaching staff members, at least in collaboration with the company experts.

For further improvement

1. Include more knowledge on computer science and data analysis material in the curriculum, according to the requests of several stakeholders expressed during the site visit.

AREA 2: LINKS BETWEEN SCIENTIFIC (OR ARTISTIC) RESEARCH AND HIGHER EDUCATION

2.1.	Higher education integrates the latest developments in scientific (or artistic) research and technology and enables students to develop skills for scientific (or artistic) research

FACTUAL SITUATION

2.1.1. Research within the field of study is at a sufficient level

The College staff carries out some applied research in accordance with the new requirements for colleges by the Lithuanian government, which is expressed in points, covering applied research and development, contracts and projects, etc., although the amount should be increased. This ongoing applied research and experimental development is closely connected with the labour market actors, and thus, financing and organisation of such activities happens under commission contracts with the clients. These contracts include regulations concerning the protection and management of intellectual property, and the way of development of research competence of the participating staff, and regulates the opportunities for publication of the results of such R&D activities. Nevertheless, the publication activity needs further gradual improvement. In the future, in the evaluation of the HEI, not only the commissioned research carried out by the study programmes related staff, but also research articles and other scientific output, in peer-reviewed national and foreign scientific journals or conference proceedings, and presentations at international and national conferences must be included. This international publication activity is still in a building up phase.

The statistics of R&D related commissions and publications is still very initial, in the next few years the activities in this direction must be continuously increased. The majority of the teaching staff has no or very little publications in the narrow sense. In addition, some of the articles authored have little connection with the particular study field. (E.g., lubricants are very important in vehicles, but they are not connected to the Electronics area.) The former constitutes only ⅛ of the total commission income, while the latter is almost negligible in international journals. According to the SER, the College has not yet accumulated sufficient experience in submitting documentation for evaluation. However, the objective data show that these activities must be intensified. During the site visit, a certain reluctance was shown concerning the opening of activities towards any basic or long term research. This attitude should be changed.

The results of the applied research carried out in the study field programmes are integrated into the lecture material, in the development of the faculty's competencies, and the development of the content of practical training, etc. However, the amount seems to be insufficient, concluded from the statistics provided. Between 2020 and 23 the total number of publications related to the study field increased from 8 to 18, which shows a positive, although rather slow tendency. Alas, only 1 or 2 per year are these in an international context. Unfortunately, the “Engineering and Educational Technologies” periodical, which is the main media, is not included in the Scimago list. In addition, the articles mentioned in the SER are mostly not connected with the field. The publication of the best thesis results is a good tendency that should be followed and intensified.

The practical activities and the cooperation with industry partners only ensures a very restricted scope of the novelties of the area, although this has been present for a longer time. Research and development projects carried out at the partner organisations may be rather of short term nature with immediate applicability. The joint application together with the Schmalkalden University of Applied Sciences in Germany may help increase more long term R&D activities. Also, four project proposals submitted at national level are currently under evaluation, in the case of success, they may intensify the research and connected publication activities.

Students can produce prototypes and carry out research on the premises of LIK, supported by UAB Kitron, and similar laboratory projects are open for the students. From the SER, and the discussions at the site visit, it is not clear how the teaching staff is involved here. It would be interesting to know how the planned student research activities are unfolding.

The following sentence in the SER should be filled with some interpretable contents: “The Committees of the study field programmes and their teachers monitor and analyse the latest academic publications, articles in scientific journals, books and other sources to update and expand the content of the study programmes.” During the site visit, no strong evidence could be found how this updating process is going on in reality.

The international partnerships with the mentioned universities may be insufficient from the point of view of research, especially, as it is based on ERASMUS+ mobilities, as these latter focus on teaching only, and often do not use in reality even the provided hours.

The involvement of final year students in conferences is a positive phenomenon, and the initial increase shows an improvement.

2.1.2. Curriculum is linked to the latest developments in science, art, and technology

There is evidence for the intention to link the curriculum to recent developments in the related fields, namely, to include areas which are not yet covered in the course contents but emerge annually as new fields of interests in the partner companies. Such topics should be studied by the extracurricular laboratory activities, and later, if further need emerges, be included in the general course contents. Based on both the SER, and the site visit conversations however, this obviously happens only through the experts of the partner companies, and the short term R&D activities mostly carried out there. According to the description in the SER, and comparing its contents with the experience at the site visit, these are often routine engineering tasks (such as measurements, see “Use of a Capacitive Sensor for Measuring Water Level”, or maintenance and operation tasks like “Diagnostic and Operational Restoration Measures of Mercedes-Benz Car Starting Systems” rather than real R&D problems. This was especially evident based on the conversations with the teaching staff who expressed a certain reluctance to be involved in long term or theoretically challenging research, and connected publication activities. Because of this, the teaching staff must be more intensively engaged in studying the latest developments of their respective fields, by actively reading the relevant, most important publications (especially the IEEE Transactions series) and help students get more novel information on such topics. This is very important in the computer science and data analysis field, which nowadays has very close relation with electronics engineering.

2.1.3. Opportunities for students to engage in research are consistent with the cycle

The students have some opportunity to be involved in projects, partly in the College laboratories, but mainly at the companies themselves, defined and led by industrial colleagues. This is good, but teaching staff should be more active, especially by increasing the number of projects in research with long term goals, even if with applied goals, where the students could be involved, by measurements and investigations, by writing computer programmes, etc. The results of such student R&D works are presented at national - and mainly local - conferences. The percentage of students involved has been slowly growing in the last few years, from 3%, but still not reaching 10%.

ANALYSIS AND CONCLUSION (regarding 2.1.)

The involvement of new research and development results in the subjects do not obtain the necessary weight, and even motivated students have little opportunity for participating in individual extracurricular research oriented work. The College does not offer sufficient opportunity for extracurricular R&D activities for the students, even though some of the teaching staff are very much committed to doing whatever promotes the students’ realisation of individual professional

development goals. However, this commitment is necessarily limited by the potential of the teaching staff itself, where only projects dealing with applied R&D in the narrow sense are carried out (see examples above based on the SER), and little interest towards wider activities has been shown at the site visit.
The employers of the graduates give limited financial and in kind support that could lead to the establishment of more sophisticated laboratory equipment that could be the environment for further individual professional activities aligned with the expectations of the future employers.

AREA 2: CONCLUSIONS

AREA 2	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

COMMENDATIONS

1. Good relations with the industry partners ensure the training of students based on the latest technologies, even though it happens mainly at the companies;
2. There is a slowly increasing tendency of being involved in publication activities by students as well.

RECOMMENDATIONS

To address shortcomings

1. The teaching staff must be more active in studying scientific articles, work on new research results, and involve students in this, accordingly, the expected aims are only partially met;
2. The teaching staff must intensify applied research, and to some extent, long term research activities;
3. Considerably more, international and Scopus (and, possibly WoS) indexed publications must be written by the teaching staff;
4. Teaching staff must be expressly involved in the company sponsored on campus student projects, taking a leading role;
5. College lecturers need to start collaborating more with business representatives on the application of research work.

For further improvement

1. Study the highest level scientific sources (articles, books, conference proceedings) and participate in really international (not only narrow, regional) congresses in the field. (It is important to take part in IEEE organised ones);
2. The involvement of teachers and students in non-routine R&D projects is not satisfactory, it should be intensified;
3. There is an insufficient number of scientific publications in ISI Web of Science databases. This must be increased by personally supervising extracurricular R&D work of students, and encouraging involvement.

AREA 3: STUDENT ADMISSION AND SUPPORT

3.1.	Student selection and admission is in line with the learning outcomes

FACTUAL SITUATION

3.1.1. Student selection and admission criteria and procedures are adequate and transparent

The overall interest in engineering studies is relatively low in Lithuania. This unfortunate fact has caused a tendency of decreasing, or recently, stagnating and slightly increasing number of both 1st priority and lower priority applications to LIK. This influences the admission criteria although the minimum requirements must be maintained. As a result, the total admission number is stagnating, nevertheless, the average scores of the admitted students show a small increase.

It is a national regulation that applicants who have completed secondary education in earlier years must meet the minimum standards applicable to their school-leaving year, but there is no age limit. Applicants may take part in the General Admission, and those who have not, are entitled to participate in the Institutional Admission, regulated by LIK. Persons who have obtained education in foreign institutions, or in the framework of educational programmes of international organisations for admissions to the state-funded places of study at HEIs, foreign Lithuanians are awarded one additional point, and persons who have graduated from one of the six Lithuanian schools abroad - another additional point. The additional admission is carried out by an Admissions Committee.

At the site visit, students confirmed that they had access to all necessary information they needed for application, accessible via the internet. All of the relevant information about the admission process is provided on the College website (https://www.lik.tech/priemimas/kaip-tapti-studentu). Also, general information about the study programmes is provided in the Open Information Consultancy Orientation System (AIKOS). Admission to higher education institutions is carried out by LAMA BPO, Association of Lithuanian Higher Education Institutions for the Organisation of the General Admissions.

3.1.2. Recognition of foreign qualifications, periods of study, and prior learning (established provisions and procedures)

Admission of foreign students is carried out in accordance with the “Admission Procedure for Foreign Country Citizens to Non-State-Funded Studies at LIK”. The recognition of studies abroad is carried out based on the document “Description of the Procedure for the Recognition of Competences Acquired through Formal Education as Part of a Study Programme”. For students returning after a period of study abroad, the learning outcomes are recognised and credited in accordance with the provisions of the Erasmus+ Charter. In the past three years, a total of 24 students of the field have had 303 ECTS credits acquired while studying in foreign HEIs.
The number of foreign students studying at the College (at least for 15 credits) has been growing for the last few years in a steep manner, which is a good tendency, supporting the internationalisation of the College.

The declared aim of the LIK is to be a leader in engineering studies in the Baltic region, sharing knowledge and contributing to the development of society and industry. The slogans are “Increasing efficiency” and “Active development”. Based on the findings of the site visit, LIK is rather efficient and successful in realising these aims, confirmed by the company representatives present - although they stated that inclusion of more computer science and data processing related knowledge will be more and more important in the future, and they encourage the College to lay more stress on these aspects.

According to the information obtained at the site visit, from the staff, there is special regulation for Ukrainian nationals. Admission of Ukrainian students is carried out in accordance with the procedure established by the Republic of Lithuania in the "Description of the Procedure for Providing Support for the Studies of Ukrainian Citizens in Lithuanian HEIs from 2023". Candidates are admitted to non-state-funded studies. If a citizen of Ukraine does not have refugee status, the student admission takes place in accordance with the procedure established by LIK for the admission of foreign nationals. Ukrainian students at the College are additionally provided with free individual Lithuanian language lessons.

ANALYSIS AND CONCLUSION (regarding 3.1.)

Based on the statistics in the SER, the tendency of the sum of the total points of admitted students is slightly increasing, despite a stagnating interest in applying for engineering studies. However, the period presented is too short to make important conclusions, thus, it may be more appropriate to consider that the admission point limit is stagnating.

The admission procedure fully complies with the legal regulations. The students are well informed about the whole admission procedure and the conditions. This is confirmed by both the SER and the site visit conversations.

There is a transparent system of recognising foreign qualifications. This includes the recognition of credits obtained abroad by Lithuanian students.

There is a special procedure for admitting Ukrainian students, which must be considered as temporary.

3.2.	There is an effective student support system enabling students to maximise their learning progress

FACTUAL SITUATION

3.2.1. Opportunities for student academic mobility are ensured by the College, however, because of the employment of most students, with many students, there is a practical difficulty in realising them.

Based on the SER, it could be established that the College has developed a "Strategy for the Internationalisation of Higher Education and Research Activities, and has measures in place for its implementation as well as for measuring the effectiveness of these activities. The frameworks are bilateral and multilateral cooperation with foreign partners, especially with Schmalkalden University of Applied Sciences, academic mobility of students, international study development and study quality improvement projects, such as one governmental project won, and carried out with Ukrainian HEI-s. The College signed a cooperation agreement with the Cormack Consultancy Group, which aimed to assess the internationalisation activities, international image, partnerships, vision and opportunities for academic citizens.

Students are offered possibilities of international mobility. Information about these mobility opportunities for students is published on the College website, spread during career events, meetings with students in individual study programmes, in consultation with the International Relations Coordinator, by sending individual information newsletters to students, and direct conversations. However, students who already have a job (which is mostly the case with last year students), have no motivation of participating in outgoing mobility, as the employers do not support the concept of giving a leave for such study trips. It would be rather advantageous if there were a possibility for the College to agree on offering an opportunity for the students to leave at least for several weeks mobility, as the experience abroad may be useful for the employer in the long term.

It is a very important element of the international connections that students in the Electronic Engineering study field have the opportunity to study under a double degree agreement at Schmalkalden University of Applied Sciences in Germany. So far, this double degree opportunity is used only by Lithuanian students, but in the future, it may be extended to German students arriving in Kaunas, for partial studies. In any case, this is a strong and important element of the internationalisation of education at LIK.

3.2.2. Academic, financial, social, psychological, and personal support provided to students is relevant, adequate, and effective

According to the SER, LIK offers different types of scholarships, for example incentive, nominal, one-time social benefits, and prizes. Also, there is a possibility to get scholarships from companies and industry partners.

LIK students are offered academic and career-development support. They can partake in different kinds of activities, like folk dance clubs, racing clubs and more. There are also numerous sports activities and different sports teams for students. At the site visit, the students have communicated mostly positive facts, being satisfied with the personal support from the College and its teachers in every respect. Although, in the SER it is mentioned that the college only provides contacts for psychological help providers and that they can turn to free helplines, at the site visit, students mentioned that now there is an on-site psychologist who can provide help for the, but the students raised a problem with the LIK psychologist, and they said that they considered him inadequate and unhelpful. They do not trust him with their problems and would rather avoid going to him for help, which is mainly due to the fact that this psychologist is a lecturer in the College, as well. It is impossible to turn to him when they have some problem with him or one of his colleagues.

3.2.3. Higher education information and student counselling are sufficient

It is mentioned in the SER, that from the beginning of their studies, students are introduced to key aspects of their studies, including programme details, regulations, schedules, and available services. International students receive support through introduction events, cultural orientation, and Lithuanian language courses to help with their integration. There is a mentoring system in place that ensures that each student has access to academic, administrative, and personal support. Career counselling, job and internship information, and opportunities for further studies are also available. LIK actively monitors student progress and motivation through feedback mechanisms, attendance tracking, and regular assessments. Overall, the range of services and continuous support mechanisms demonstrate that the information and counselling provided to students are both sufficient and effective.

As cumulative and interim assessment is applied, it is possible for students to recognise any shortcomings in the study process and turn to counseling in order to help make up for any slow down features in the study process. Teachers willingly offer and provide such counseling help.

The students have communicated only positive facts at the site visit, being satisfied with the accessibility of all information related to the education process, and student counselling from the College, and its teachers, resp. This mainly goes through the internet, however, they also have opportunities to meet in person with their teachers and discuss questionable issues.

ANALYSIS AND CONCLUSION (regarding 3.2.)

Based on the provided information in the SER and the site visit, the student support system is effective and it is enabling students to maximise their learning progress. Although, not a lot of students use these opportunities. They don’t use international mobility opportunities, extra-curricular activities and other tools to adapt their curriculum.

The biggest problem was the psychological support students receive. They used to receive only contacts to seek help, but now they have a psychologist that is also a lecturer. Students mentioned

at the site visit, that it is difficult to receive help from him. This should be improved and changed, because it is as important as any other part in the college for students.

AREA 3: CONCLUSIONS

AREA 3	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

COMMENDATIONS

1. The constantly growing number of foreign students studying at LIK is a very positive tendency;
2. The double degree programme with Schmalkalden University of Applied sciences offers a unique opportunity for LIK students to study abroad, and obtain a valuable document not only acceptable, but very welcome everywhere in the EU.

RECOMMENDATIONS

To address shortcomings

1. The psychologist isn't sufficient, this area should be improved by changing the psychologist, because he is a lecturer this creates trust issues between students and the psychologist.

AREA 4: TEACHING AND LEARNING, STUDENT ASSESSMENT, AND GRADUATE EMPLOYMENT

4.1.	Students are prepared for independent professional activity

FACTUAL SITUATION

4.1.1. Teaching and learning address the needs of students and enable them to achieve intended learning outcomes

Both full-time and part-time modes of study, differing in intensity and annual volume, are implemented in the study programmes of the field, however, the volume of studies in credits and the volume of contact work are the same regardless of the mode of study. In the full-time study mode, the average duration of a semester is 20 weeks with 2-3 weeks in that period devoted to the examination session, and the average duration of contact work is 30 academic hours per week. Study programmes or individual subjects may be studied remotely and in a hybrid mode. Theoretical lectures, independent work and tutoring may be organised remotely via distance learning platforms, and practical classes, internships and laboratory work are to be organised always face-to-face.

LIK uses a ten-point criterion-based cumulative assessment system to assess knowledge, skills and abilities. Student achievements are assessed by means of interim assessment tasks and an examination or by a piece of independent work. Cumulative assessment, where the assessment consists of the grades obtained during the whole semester in the form of interim assessment tasks and an examination or independent work, encourages students to be active participants in the study process, to work more evenly throughout the semester and reduces the workload and stress during the examination session.

4.1.2. Access to higher education for socially vulnerable groups and students with individual needs is ensured.

Students from socially disadvantaged groups and students with special needs are able to study according to individual study schedules. The learning conditions (study environment, materials, organisation of examinations, etc.) may be adapted to the student's individual needs. It is possible to acquire additional equipment, if necessary.

ANALYSIS AND CONCLUSION (regarding 4.1.)

LIK implemented both full time and part time study programmes, however, with equal credit number and contact hour numbers In the case of individual subjects the contact hours may be given in hybrid mode, online and in person, however practical classes, internships and laboratory work are to be organised always face-to-face.
LIK uses a ten-point criterion-based cumulative assessment system to assess knowledge, skills and abilities.This happens by means of interim assessment tasks, examinations or based on independent work. The workload is distributed throughout the semester in a balanced way.

Students from socially disadvantaged groups and students with special needs are able to study according to individual study schedules, according to individual needs..

4.2.	There is an effective and transparent system for student assessment, progress monitoring, and assuring academic integrity

FACTUAL SITUATION

4.2.1. Monitoring of learning progress and feedback to students to promote self-assessment and learning progress planning is systematic

Monitoring the students' advancement is happening in several ways. During the semester, the students complete the assignments according to the timetable specified in the subject/module descriptions, and his/her progress is assessed by monitoring the evolution of the cumulative score. In addition, teachers directly monitor student progress in their subject and the progress of students' independent work is monitored by the teachers and periodic feedback is given to students through tutorials using face-to-face and/or distance methods at the teacher's discretion. The students participate in a mentor-mentee procedure, where an Academic Advisor, a specially trained member of the academic staff assists the mentee in study matters over the course of full-time and part-time studies, assesses the need for subject-specific support for the mentee, selects effective methods of problem solving, and, if necessary, offers the support of other specialists. Students confirmed this during the site visit. However, the system is not functioning well in extracurricular activities, as most teachers are not participating in supervising personalised work, not even in collaboration with the company experts, as such projects are typically offered and supervised by members of the company staff (often future employers), according to the SER.

4.2.2. Graduate employability and career are monitored

The employment rate of graduates in the Electronics field 12 months after graduation was 54% in 2021, 81% in 2022 and 80% in 2023, now a stabilised and good rate.

Monitoring happens in a way that the applied methods for monitoring graduate employability are still not sufficiently accurate. The reason is partly the insufficient frequency of collecting information on the views of graduates and employers on professional preparation and the competencies of graduates. The College cannot directly monitor the career future of former graduates, because of the protection of personal information. However, they organise come togethers for alumni, where voluntary offer of information from the graduates is very useful for this monitoring. There is no mention of any organised alumni union or other organisation that could help continuous monitoring.

The study programmes of the field ranked second in 2023 and first in 2022 and 2021 in the field of Electronic Engineering among Lithuanian higher education colleges according to the criterion "employer opinion on graduates".

The company representatives present confirmed that graduates can easily find employment, their skills are sufficient for filling positions according to their professional degree. However, they requested that LIK lays in the future more focus on the computer science and data analysis abilities and skills of the graduates, as these are nowadays ever more and more important in the electronics engineering area.

4.2.3. Policies to ensure academic integrity, tolerance, and non-discrimination are implemented

The principles and measures to ensure academic integrity, tolerance and non-discrimination are described in the Code of Academic Ethics. LIK does not tolerate any form of academic dishonesty, the principle of academic freedom is recognised, the relations between the members of the community are based on the principles of collegiality, academic solidarity, respect for the dignity and autonomy of the individual; the students are guided by the principles of academic honesty and fair competition in the process of study.

There have been no cases of breaches of the principles of academic integrity, tolerance and non discrimination in the study programmes of the field investigated during the last three years.

4.2.4. Procedures for submitting and processing appeals and complaints are effective

The students have not reported any case of complaint that has not been properly addressed, or processed according to expectations. Generally, there are only very rare complaints, because of the general satisfaction of the students with the educational process and the attitude of LIK

teachers. According to the SER, there were no such appeals in the last three years.

According to the SER Student appeals and complaints regarding violations of assessment or assessment procedures are examined within accordance with the "Description of the Student Appeals Procedure of LIK. An appellant who disagrees with the final grade of a course may, within three business days of the publication of the assessment results on the Academic Information System (AIS), submit a justified appeal in writing to the Head of the Study Organisation Office regarding the assessment and/or violations of the assessment procedures. The appellant has the right to review his/her written work before submitting the appeal. Other matters relating to appeals and not covered by the Description are decided by the Director of LIK.

ANALYSIS AND CONCLUSION (regarding 4.2.)

Both according to SER and the site visit, at LIK there is an effective and transparent system for student assessment, progress monitoring, and assuring academic integrity, while complaints and appeals are fairly handled, even though in the past years such cases were not reported.

Neither were cases of any kind of intolerance or discrimination occurring.

AREA 4: CONCLUSIONS

AREA 4	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle				X	

COMMENDATIONS

1. Feedback by the stakeholders and employers concerning the skills of the graduates was experienced at the site visit was weather positive. Employers are generally satisfied with the knowledge and skills of the new employees;
2. Positive attitudes by teachers towards students, and opposite, resulting in a good college atmosphere.

RECOMMENDATIONS

For further improvement

1. Search for ways to monitor graduate employability 12 months after graduation according to the level of qualification obtained even though the data is no longer available in the Education Management Information System (taking into account that this is limited by the Law on Personal Data). Collect information on graduate and employer views on professional preparation and competencies of graduates by organising annual meetings with employers and graduates.

AREA 5: TEACHING STAFF

5.1.	Teaching staff is adequate to achieve learning outcomes

FACTUAL SITUATION

5.1.1. The number, qualification, and competence (scientific, didactic, professional) of teaching staff is sufficient to achieve learning outcomes

The number of Associate Professors is formally sufficient, but the criteria of being appointed Asso. Prof. are lower than expected. Only 37.93% of the teachers have a PhD, which is considerably higher, however, than the 10% of the teaching staff proportion requested by law. More than half of the study field's teachers have at least 3 years of practical work experience in the field of the subject being taught.

Teachers of especially the senior levels must be more knowledgeable in the most recent developments and research results in the area, which could be achieved by reading more scientific literature, participating in international conferences, and having more intensive mobility, the visits extended also to research activities at the visited HEIs.

Of all teachers working in the study programme, only 43% speak English and 56% Russian at a level no lower than B2. Teacher English proficiency is insufficient even at B2 level, but LIK provides the conditions to develop it by English courses are held at several levels and can be attended by all academic staff. This is especially important for prospective teaching staff who participate in the English language version of the programmes, which is increasingly important with the growing number of foreign students.

The programme with Schmalkalden UAS the student mobility is only working in one direction. (Kaunas to Schmalkalden.)

ANALYSIS AND CONCLUSION (regarding 5.1.)

37.93% of the teachers have a PhD, which is higher than the teaching staff proportion requested by law.
Teachers are in the majority only partially knowledgeable in the most recent developments and research results in the area. They need more reading of the scientific literature, participating in international conferences, and having mobility, especially focusing on research activities at the visited HEIs.
Only 43% of all teachers speak English, and 56% Russian at a level no lower than B2. This is especially important for prospective teaching staff participating in the English language programmes.

5.2.	Teaching staff is ensured opportunities to develop competences, and they are periodically evaluated

FACTUAL SITUATION

5.2.1. Opportunities for academic mobility of teaching staff are ensured

Mobilities are possible, and most intensive cooperation takes place with HEIs in Portugal, Latvia, Germany and Turkey. However,the real contents of these mobilities may not reflect the full scope of the advantages of such mobilities, namely, gaining a deeper insight into the R&D activities going on at the visited HEIs. On the other hand, visiting foreign staff members should be involved more intensively in offering lectures on the most up-to-date fields of their specific knowledge, this way encouraging both staff and students to intensify their interest in those areas.

During the last three years, teachers in the field of study travelled to foreign educational

institutions to give lectures and for training under the Erasmus+ programme as well as under exchange agreements. There is a steeply increasing tendency, in subsequent years 3%, 24% and 51% of the total number of teachers of the study field subjects went abroad, namely to Latvia, Turkey, Portugal and Germany. Foreign teachers arrive at the LIK in small numbers (annually 3-6).
Student interest in the most recent advancements of the study field, accessible at the visited HEIs, and being incorporated in the study programme may be a very strong catalyst of staff development. Online remote lectures organised with a few foreign teachers are a good measure.

5.2.2. Opportunities for the development of the teaching staff are ensured

The intensity of reading up-to-date scientific and professional literature and being involved in international scientific events is far from the expected intensity that is typical for EU HEIs of similar character (engineering colleges and universities of applied sciences). According to the expectations concerning colleges in Lithuania, in terms of necessary points earned by scientific work, projects, patents, etc. further the expected updating of didactic or professional activities, it is necessary that teachers be involved in research and development, even if the research is more on the applied research side. Publication of such results is possible even in high level international journals, and thus the points earned by publications could be and should be increased. Contract based development work may often lead to some novel applied scientific recognitions, potentially to patents (maybe, jointly with the contracting partner's specialists), and also in some cases, to conference and journal papers. Such possibilities must be sought for and used. Especially the publication of research papers in Scopus and WoS referred journals is missing.

ANALYSIS AND CONCLUSION (regarding 5.2.)

Mobility opportunities are given, but mainly for short term teaching purposes. There is little evidence of mobilities with R&D purposes, and also very little attendance of real international scientific conferences is happening. While teaching mobilities (such as Erasmus +) are providing the possibility for delivering a number of lectures at foreign HEIs, there is little opportunity for studying their methodological novelties and scientific activities.

These shortcomings are reflected in the relatively low number of PhD-s (which nevertheless complies with the requirements), and the low percentage of at least B2 level (but possibly higher) English proficiency among the teachers.

AREA 5: CONCLUSIONS

AREA 5	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

RECOMMENDATIONS

To address shortcomings

1. There is no sufficiently intensive research and development work;

2. The percentage of teachers with sufficient level of English command is low, and it makes it difficult to read and write international scientific papers;
3. Teachers must participate in international scientific conferences, and must read such professional articles, especially, published by the IEEE;
4. Teachers should write scientific papers and publish them in Scopus and Web of Science referred periodicals.

For further improvement

1. The staff skills in programming, data analysis and related fields, especially, in the context of electronic systems engineering should be improved;
2. Participate in more international mobility, focus on research and development also, besides teaching.

AREA 6: LEARNING FACILITIES AND RESOURCES

6.1.	Facilities, informational and financial resources are sufficient and enable achieving learning outcomes

FACTUAL SITUATION

6.1.1. Facilities, informational and financial resources are adequate and sufficient for an effective learning process

The lecture rooms are appropriate and sufficient, both in size, the necessary furniture and IT access. The 44 classrooms and laboratories are equipped with a total of 1497 student workstations, 206 of which are computerised and 174 specialised. Classrooms are designed to accommodate academic groups of up to 25 students on average, and most of the practical workstations are designed to accommodate two students per workstation. Seven classrooms are intended for general compulsory and elective study subjects (196 workstations); 36, for compulsory and elective subjects of the study field (1285 workstations); 13 classrooms and laboratories are used for subjects intended for deeper specialisation in the field (345 workstations).

The laboratories contain the necessary equipment for teaching all subjects within the courses, especially classical electronic measurement panels and instruments, but there is a wide space for further development. Here, the social partners may play an important role, partly, by providing considerably more expensive up-to-date equipment for the LIK laboratories (a similar procedure as what may be observed at universities of the region, sometimes by the same social partners). The more advanced laboratories are mainly established by collaboration with companies, in the way that the latter finance the equipment. This is rather positive but the amount of direct financial aid and in kind equipment is still far from the ideal. The companies could be more engaged in the establishment of the laboratories.

The library does not contain the sufficient number of books and periodicals needed for deeper study of the field. By the findings at the site visit, it turned out that the most important digital databases cannot be accessed here. Access to many more international journals (first of all, via digital databases), and recent professional books should be provided, both for the staff and the students.

During the site visit the panel found that extensive renovations works have been carried out and are going on. The management should discuss with the academic staff, whether the available financial resources could not be proportioned in a way that allows more intensive development of the laboratories and the library from their own resources.

6.1.2. There is continuous planning for and upgrading of resources.

There is such planning, but the financial possibilities are restricted. The College has cooperation projects with several social partners, and in the frame of these, the enrichment of the laboratories is carried out.However, based on the observations of the site visit, it is rather straightforward that the social partners and employers should participate more intensively (involving more financial means) in the upgrading of laboratories, and it would be also a good initiative to establish a college foundation, where social partners could contribute directly by financial means. (Such an initiative exists with other HEIs in Lithuania, where much more advanced and more voluminous equipment is donated to the HEI-s by the social partners.) The planned new equipment to install includes the following: Stationary microthermography system, Video inspection and optical automated defectoscopy equipment, Physical parameter measurement equipment set compatible with the Labview platform, a number of new oscilloscopes, multimeters, data loggers, scales, cables, power supplies, soldering stations, and accessories, A collaborative robot adaptation kit with innovative manipulation tools for use in electrical engineering production, with an adaptive artificial vision system, 5G kit SA 5G technology base station with radio part and Core part simulation

server, Smart building equipment kit for the production of 10 practical training stands: for heating, ventilation and air conditioning, lighting, window and blind control, security, access control, fire and video security systems, etc.

ANALYSIS AND CONCLUSION (regarding 6.1.)

The classrooms are sufficient in number and equipped well. The laboratories are sufficient but they need further development. Plans for the extension of laboratory equipment exist in very concrete ways. The library is not satisfactory, most books and periodicals, and access to digital databases is necessary.

AREA 6: CONCLUSIONS

AREA 6	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

COMMENDATIONS

1. Collaboration with the social partners in the form of financial and in kind laboratory equipment donations exist.

RECOMMENDATIONS

To address shortcomings

1. Although collaboration with the social partners is essentially good, and they participate in the development of the laboratories, the role of employers and other social partners should be continuously intensified in respect of both in kind and financial contributions to the LIK's facilities' continuous development;
2. International publication databases should be made widely accessible to both staff and students, and more international professional books must be obtained in the library;
3. The College management staff must find a clearer and closer way to cooperate with the college's lecturers, addressing the needs, mainly financial, that are raised by the teaching staff, especially, where to apply the available funds for maximally increasing the efficiency of the study process.

For further improvement

1. The college community should seek closer relations with social partners to help renew and enrich laboratories on college premises.The relation with relevant companies is rather good (although more financial and in kind help would be welcome by the College).

AREA 7: QUALITY ASSURANCE AND PUBLIC INFORMATION

7.1.	The development of the field of study is based on an internal quality assurance system involving all stakeholders and continuous monitoring, transparency and public information

FACTUAL SITUATION

7.1.1. Internal quality assurance system for the programmes is effective

Based on the SER and this information confirmed by the scarce findings of the site visit, the internal quality assurance system is more or less sufficient and functioning - as far it refers to the educational process. This is ensured by the council meetings, the discussions with the social partners, and the student feedback that is also evaluated and used for improvement and alterations in the study process. There is an LIK Quality Manual (accessible at https://www.ktk.lt/uploads/fbfed8a2-3813-46c4-a5a5-cd12e3b2b4e9/QUALITY_MANUAL.pdf) which is used to ensure the high-quality implementation of studies. Accordingly, a Study Programme Committee assures the quality for each study programme. The Study Programmes Department and the Study Programme Committees meet throughout the academic year to make various decisions related to the implementation of study programmes. At the beginning of each academic year , the Head of the Study Programme reports on the activities of the Study Programme Committee and the teachers assigned to the study programme under his/her supervision for the previous academic year to the Head of the Study Programmes Department, who in turn reports to the Director of LIK. In addition to reporting on the activities of the entire academic year, the Head of the Study Programmes Department conducts an analysis of the interim performance of the study programmes during the course of the academic year. This way continuous quality assurance of the studies is achieved, informing decision-making and helping monitor their implementation, ensuring the participation of students, alumni, stakeholders/employers.

However, the quality assurance criteria concerning staff involvement in scientific activities, and implementation of novel knowledge in the study process are not appearing explicitly in this procedure. THis is reflected by the fact that the conditions of promotion of the staff do not comply with expectations and national and international customs, concerning scientometric criteria. There must be determined a strict criterion system concerning the scientific development, research activities, publications and citations necessary for the promotion of staff members to higher positions.

We did not find a unified KPI evaluation system that is based on stakeholder and student feedback.

7.1.2. Involvement of stakeholders (students and others) in internal quality assurance is effective

The stakeholders take place in the committees deciding on the course contents, according to the SER. Nevertheless, the accentuation of the necessity of more computer science and data analysis knowledge of the graduates clearly indicates that such requests are not directly, and immediately built into the educational programme, and that questions the ultimate efficiency of the role of stakeholder participation in internal quality assurance. Students and alumni are also taking part in the Study Programme Committees, attending the meetings regularly and having the opportunity to comment on the study process and propose new elements for the updated contents.

7.1.3. Information on the programmes, their external evaluation, improvement processes, and outcomes is collected, used and made publicly available

Information on the programmes and their external evaluation is made public by the internet. It is only partly true for the improvement processes, namely, a certain rigid view was experienced

during the site visit, concerning the immediate necessities of improvement. While the LIK is considered a HEI of high esteem in the Baltic region, and its graduates are well received by the employers, the continuous necessity of improvement is only partially recognised by the college, as the management and the staff are reluctant to accept the necessity to be more involved in scientific work, while the study process itself is properly improved every year, based on the Study Programme Committees' decisions or recommendations. Also, the intensification of the contents of the study programme containing computer science knowledge and skills is slow.

7.1.4. Student feedback is collected and analysed

The students of the study field programmes have the opportunity to express their opinion on the quality of their studies each academic year by participating in focus group discussions as well as in the virtual learning environment Moodle, where anonymous questionnaires for the evaluation of the quality of teaching in each subject are available. Focus group discussions and interviews gather information on student emotional and psychological satisfaction with the LIK environment, the relationship between teachers and students, the quality of teaching from the student's perspective, student expectations, motivation, adaptation, and problems related to the study process. Student suggestions and recommendations are also recorded. Students are essentially happy with the school and the educational process, thus they mainly send positive feedback. No problem in this respect was experienced.

As a result of student feedback gathered, several measures were taken. Such are the introduction of a new "Telecommunications" specialisation in the Electronic Engineering study programme. Similarly, the development and implementation of the LIK Mentoring Programme initiated by student feedback designed to help students to navigate unfamiliar situations during the study process. The organisation of lectures by the industry partners integrated into the study process each academic year. Further measures are: the classrooms being adapted for hybrid learning set up in response to student feedback; adjustment of teaching methods for subjects brought to the institution's attention by students, regular review of the lecture timetable and its optimisation, in respect to the students' daily work duties, etc.

ANALYSIS AND CONCLUSION (regarding 7.1.)

There is a detailed quality assurance system working efficiently at the College, which is based on the respective manual that is accessible for students and other interested parties via the internet. A set of Study Programme Committees with regular meetings during the academic year, and especially, at the year beginning addresses any issue observed by the continuous monitoring of the study process by the committee members. Student feedback is taken into account, and several new ways of teaching, changes in the time table, adapted to the students' special needs, further, the introduction of hybrid teaching are examples for the utilisation of the information obtained from student feedback.

AREA 7: CONCLUSIONS

AREA 7	Unsatisfactory - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

COMMENDATIONS

1. Good cooperation with the students, the internal quality assurance system is efficient concerning the basic educational process;
2. The mentor-mentee programme that was established based on student feedback information is good practice.

RECOMMENDATIONS

To address shortcomings

1. Quality assurance referring to the staff promotion criteria, and expectations of scientific activities are not sufficiently accentuated;
2. Employer requests concerning the modernisation of the course contents should be more efficiently reflected in the quality assurance system.

For further improvement

1. The College management should prepare a clear KPI plan for the college lecturers, so that they know clear evaluation criteria for their work results.

V. SUMMARY

Lietuvos inžinerijos kolegija (LIK) is a leading college in the Baltic area among those providing a professional B.SC. degree in electronics engineering. It has a longstanding tradition and offers a conservative but well known and accepted degree. The stakeholders unanimously offered a positive opinion on the HEI. The employers are satisfied with the knowledge and skills of the graduates. The graduates themselves who appeared at the site visit, reported on being well received by their employers.

The employers, on the other hand, indicated that they would expect more up-to-date knowledge taught to the students, in the fields of computer science (including programming skills), and data analysis. According to them, nowadays, it is utterly necessary that electronics engineers are in possession of such knowledge, as modern electronic equipment cannot be separated from programming and computer control. Further, the data collected by such equipment, and observed by the operating staff, would need the capacity of being able to handle them by modern, intelligent data analysis approaches. During the conversation with the employers, such methods, like deep learning, and other intelligent, autonomous algorithms were mentioned. This, however, necessitates that teaching staff members must also develop their own skills in these fields, otherwise it would not be possible to include such new contents in the course.

Another, very important shortcoming of the teaching staff is that they are very little involved in research and development. Their activities in this respect are mostly restricted to participation in industrial related contracts, which as a matter of course, include some development and less typically, applied research activities, but the amount of this type of activities is far below the expected level. This is partly due to the fact that the general attitude of the teaching staff is rather conservative, concerning the role of colleges, while recent Lithuanian requirements to colleges also include more intensive, internationally visible research. This would mean more study of the up-to-date professional literature of the respective field, which, again, requests a better command of English, and especially, access to the most important scientific databases (eminently, IEEE Explore). However, personal and active involvement in the international scientific community is also important. That means that participation in international scientific conferences should be much more frequent than at present, and involve the best students, e.g., by presenting the results of their theses. This would automatically bring in the most recent results and knowledge accessible at such events into the students' reach as well.

Mobility of the teaching staff should also extend to research oriented mobility. Teaching merely does not offer all advantages of exchanging information and professional development.

The reéation of the students with the college and the teaching staff is very good, there are no complaints, and the teachers are generally helpful in any matter related to the educational process. Nevertheless, offering more opportunities for participation in extracurricular R&D activities for motivated students, under the guidance of the teaching staff could enhance the level of the educational process. No complaints or other shortcomings of the students' life at the college were reported.

The library is not very strong, widening the collection, and especially, obtaining access to the most important digital scientific databases and providing up-to-date information on the recent developments of electronic engineering to both the staff and interested and motivated students would enhance the quality of the education.

Laboratories are equipped to a satisfactory degree, but with the kind and direct financial help of the social partners, the level could be further raised.

VI. EXAMPLES OF EXCELLENCE

- The double degree issued together with the Schmalkalden university of Applied sciences is an example of excellence.