CENTER FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD

ELECTRICAL ENGINEERING

at Kaunas University of Technology

Expert panel:

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2. **Prof. Dr. Marko Čepin,** *academic,*
3. **Dr. Isabelle Avenas-Payan,** *representative of social partners,*
4. **Dr. Dainius Balbonas,** *academic,*
5. **Dr. Rolandas Urbonas,** *representative of social partners'*
6. **Mr. Ruben Janssens,** *students' representative.*

Evaluation coordinator – *Ms. Natalija Bogdanova*

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Study Field Data*

Title of the study programme	***Electrical Engineering***	***Electrical Power Engineering***
State code	*6121EX010*	*6211EX010*
Type of studies	University studies	University studies
Cycle of studies	First	Second
Mode of study and duration (in years)	Full-time, 4 Part-time, 6	Full-time, 2
Credit volume	240	120
Qualification degree and (or) professional qualification	Bachelor of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian, English
Minimum education required	Secondary	Bachelor of Engineering Sciences
Registration date of the study programme	1992-12-16	1992-12-16

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

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I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

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

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

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

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

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

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

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

1.2. EXPERT PANEL

The expert panel was completed according to the Experts Selection Procedure (hereinafter referred to as the Procedure) approved by the Director of Centre for Quality Assessment in Higher Education 31 December 2019 Order No. V-149. The site-visit to the HEI was conducted on-line by the panel on *25th November 2020.*

Prof. Dr. Toomas Rang (panel chairperson) *professor of Tallinn University of Technology, Institute of Informatics, Estonia;*

Prof. Dr. Marko Čepin, *professor at University of Ljubljana, Faculty of Electrical Engineering, Slovenia;*

Dr. Isabelle Avenas-Payan, *member of the French Quality Assurance Commission for Engineering Study Programmes (CTI),France;*

Dr. Dainius Balbonas, *lecturer of Šiauliai University, Head Engineering Study Programs Committee, Lithuania;*

Dr. Rolandas Urbonas, *Lithuanian Energy institute, Deputy Director, Lithuania;*

Mr. Ruben Janssens, *student of Ghent University, study programme in Computer Science Engineering, Belgium*

1.3. GENERAL INFORMATION

The documentation submitted by the HEI follows the outline recommended by the SKVC. Along with the self-evaluation report and annexes, no additional documents have been provided by the HEI before, during and/or after the site-visit.

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

The number of universities in Lithuania, which has around 2,7 millions of inhabitants, shows that the universities are not large, if there is some normally expected distribution of students across universities.

Kaunas University of Technology has a little less than 9000 students and this number indicates that it is a medium sized university. The Faculty of Electrical and Electronics Engineering is one of 9 faculties of the University. The number of students is approximately 100 students per year (approximately two thirds are normally enrolled in the first cycle and one third is enrolled in the second cycle), which indicates that the faculty size falls between a small and medium size of a faculty.

Before the year 2014, there were two faculties which merged in the year 2014 into the faculty today known as the Faculty of Electrical and Electronics Engineering. Such merging is a step towards stronger Faculty. It goes in the opposite direction that some other faculties do in some other countries, where separation of faculties into smaller and more focused programmes takes place. The integration as it is done at the Faculty of Electrical and Electronics Engineering seems an action which will make the vision and mission of the faculty more credible, because if you want to be comparable at the international level, it is important also that the size of an entity is larger. Larger in that sense means stronger and in that sense the merging of two faculties seems an opportunity for an advantage in future. This opportunity needs to be proven in practice, where the mutual cooperation between human power of employees, being before at two institutions and being now at one institution, is open and effective. The discussions with the stakeholders at the faculty revealed that mutual communication between faculty staff could not show any limitations regarding the excellence of mutual communication. This observation indicates that the merging of the two faculties was an important step and a step to a better faculty, better faculty from a point of view of being internationally recognised, from a point of view to integrate the human power of the faculty in establishing wider base for the research cooperation and from a point of view to easier realise the ambitious vision and mission of the faculty.

Length of B.Sc. study at KTU

The first cycle of study, the bachelor study lasts 4 years, 240 credits, at the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology, which is more than many studies at European universities, where the bachelor study lasts 3 years, 180 credits.

The second cycle of study, the master study lasts 2 years.

International recognition of KTU

International recognition of KTU can be checked at the World ranking lists of universities and at the European ranking lists of universities in addition to other means of judging the significance of KTU.

KTU was ranked as 801+ at World University Rankings in the year 2017, which means that they were placed between 800th and 1000th place among world universities. KTU was ranked as 1000+ at World University Rankings in every year among the years 2018-2021, which means that they were placed after the first 1000 universities in the World.

KTU was ranked as 201+ at European Teaching Rankings in the year 2019, which means that they were placed after the first 200 universities in Europe.

KTU was ranked as #801-1000 at QS Global World Ranking 2021. At the same time, KTU was ranked as #451-500 at QS Global World Ranking 2021 by subject ranking related to electrical engineering.

KTU was ranked as #53 at EECA University rankings.

Examination of EE programs at KTU by SKVC in the year 2014

EE programs at KTU were assessed the last time in the year 2014 and the review revealed together 18 points out of possible 24 (where 6 areas were quantitatively assessed), which means the average quantitative assessment 3 out of 4.

II. GENERAL ASSESSMENT

Electrical Engineering study field and **first cycle** at Kaunas University of Technology is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas

No.	Evaluation Area	Evaluation of an area in points*
1.	Study aims, outcomes and content	4
2.	Links between science (art) and study activities	4
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and publicity	4
	Total:	**28**

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

Electrical Engineering study field and **second cycle** at Kaunas University of Technology is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas

No.	Evaluation Area	Evaluation of an area in points*
1.	Study aims, outcomes and content	4
2.	Links between science (art) and study activities	4
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and publicity	4
	Total:	**28**

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

III. STUDY FIELD ANALYSIS

3.1. STUDY AIMS, OUTCOMES AND CONTENT

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

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

(1) Factual situation

The aims and outcomes of both: the bachelor and the master study programme of the Faculty of Electrical and Electronics Engineering are prepared in accordance with the vision, mission and strategy of the KTU, in accordance with the market research results, in accordance with the employer recommendations, and in accordance with the labour market trends.

(2) Expert judgement/indicator analysis

The study of electrical engineering creates a study environment that combines practical and scientific excellence in the first and in the second cycle study programme. It enables their bachelors of science and masters of science to obtain the skills needed to get suitable jobs in the society, where they fully use the acquired knowledge. The aims and the outcomes of the bachelor and the master study programme of electrical engineering conform to the needs of the society and conform to the labour market. This is proven by the fact that the engineers who finish the study find the job relatively easy. It seems that if more students would be enrolled into the programme, they would be easily employed. In recent times, the faculty promotes the study of electrical engineering so that more students would be interested for the study, because the industry needs more electrical engineers and more masters of electrical engineering. These facts prove that the faculty keeps an eye to the needs of industry in parallel to observing the interests of students.

KTU is a serious institution in establishing the links between students and the industry, because KTU has signed letters of intent with industry and other stakeholders to foster the cooperation between stakeholders.

3.1.2. *Evaluation of the conformity of the field and cycle study programme aims and outcomes with the mission, objectives of activities and strategy of the HEI*

(1) Factual situation

The mission, the objectives of activities and the strategy of electrical engineering at KTU go hand in hand with ambitious strategy of the KTU to be among top European universities. The

aims and outcomes of the study of electrical engineering and electrical power engineering at KTU (the first cycle and the second cycle), conform with the mission, objectives of activities and strategy of KTU.
The goals of the electrical engineering at KTU contribute to the following strategic priorities of the university: faculty priority are talented and motivated students, faculty priority are motivated lecturers and researchers who integrate science and application, faculty priority are relations between science and industry needs, faculty priority is international recognition in the development and transfer of existing and future technologies, participation in global knowledge networks, faculty priority is efficient management and quality in all processes, faculty priority is inspiring and friendly environment and dissemination of knowledge and values in the society.

(2) Expert judgement/indicator analysis
The aims and outcomes of the study field EE at KTU conform with the mission, objectives of activities and strategy of KTU. Namely, the aims and outcomes of the study are related with talented and motivated students and excellency of lecturers and researchers, who are connected with the industrial needs and business opportunities, international cooperation in the development and transfer of current and future technologies, participation in international networks and who serve the society very well. The faculty works in international recognition and involvement in international networks and programmes.

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

(1) Factual situation
Legal requirements are written in the following documents:

- LR1: Descriptor of study cycles (Order of Minister of Education and Science of the Republic of Lithuania on approval of the descriptor of study cycles, 16 November, 2016 No. V-1012)
- LR2: Descriptor of the study field of engineering (Order No. V-964 of the Minister of Education and Science of the Republic of Lithuania of 10 September 2015)
- LR3: Order on Approval of Description of General Requirements for the Provision of Studies, 30 December 2016, No. V-1168, Vilnius
- LR4: Methodology for External Evaluation of Study Fields, Order published in the Register of Legal Acts 31/12/2019, ID 2019-21819, approved by the Director of Centre for Quality Assessment in Higher Education, 31 December 2019, Order No. V-149
- LR5: Order on the approval of the procedure for the external evaluation and accreditation of studies, evaluation areas and indicators, No. V-835, 17 July 2019, Vilnius.

The extent of the legal requirements is very large and due to the reasons of space the legal requirements are not repeated here.

(2) Expert judgement/indicator analysis

The learning outcomes of the first study cycle and the learning outcomes of the second study cycle conforms the LR1:

- Knowledge and its application required in study and professional activity fields are well described at KTU.
- Various abilities of work with data are described defining applied methods and techniques of data gathering and analysis necessary for solving activity related issues, for the implementation of applied and fundamental scientific research and for the development of innovation are described at KTU.
- Abilities to use specific methodical, technical, organizational and other means for solving tasks related to professional activity and study field are well described at KTU.
- Abilities of communication and cooperation, and communication of knowledge, understanding and skills used in various situations related to professional activity and studies, and the level of assumed ethical and civil responsibility are well described at KTU.
- Requirements for personal and professional development, and creativity, self-sufficiency and values are well described at KTU.
- Description of learning outcomes of the first study cycle as required in LR1 is well considered at KTU.
- Description of learning outcomes of the second study cycle as required in LR1 is well considered at KTU.

The learning outcomes of the first study cycle and the learning outcomes of the second study cycle conforms the LR2 (some of the general requirements are in some extent similar to some of the general requirements of LR1):

- The concept and scope of the electrical engineering at KTU conforms to LR2 chapter 2 on concept and scope of the study field.
- The learning outcomes of the electrical engineering at KTU conforms to LR2 chapter 3 on general and special learning outcomes
- The teaching, learning and assessment of the electrical engineering at KTU conform to LR2 chapter 4 on teaching, learning and assessment.
- The levels of achieved learning outcomes of the electrical engineering at KTU conforms to LR2 chapter 6 on descriptor of levels of achieved learning outcomes.

The study of electrical engineering at KTU conforms to the LR3:

- The degrees at the electrical engineering at KTU conform to LR3 chapter 2 on qualification degrees. The name of the qualification degree corresponds to the name of the study field.
- Programme structure at the electrical engineering at KTU conforms to LR3 chapter 3 on programme structure. The quantitative criteria (“The scope of a first-cycle programme may be 180, 210 or 240 study credits”) is satisfied at the electrical

engineering at KTU with 240 study credits at the first cycle. The quantitative criteria ("The scope of a second-cycle programme may be 90 or 120 credits") is satisfied at the electrical power engineering at KTU with 120 study credits at the second cycle.

- Implementation of study programmes at the electrical engineering at KTU conforms to LR3 chapter 4 on implementation of study programmes. The quantitative criteria ("the number of contact hours (including distance contact hours) of the first-cycle and part of integrated study programme which corresponds to the first-cycle studies shall be no less than 20%, and the scope of learning with direct participation of teachers and students (non-distance contact hours) shall be no less than 10%, the scope of a student's individual learning shall be no less than 30%, unless otherwise stated in the descriptor of study field") is satisfied at the electrical engineering at KTU.
- Management of studies at the electrical engineering at KTU conforms to LR3 chapter 5 on management of studies.
- Teachers and material resources at the electrical engineering at KTU conforms to LR3 chapter 6 on teachers and material resources. The quantitative criteria ("No less than 50% of the first-cycle university level and no less than 10% of the first-cycle of college level subjects of study fields must be taught by scientists/researchers or renowned artists (art subjects).") are exceeded at the electrical engineering at KTU. The quantitative criteria ("No less than 80% of master studies' teachers must hold a scientific (artistic) degree (be renowned artists).") are exceeded at the electrical engineering at KTU. The quantitative criteria ("No less than 20% of the scope of study field subjects must be taught by teachers occupying the position of a professor.") are exceeded at the electrical engineering at KTU.

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

(1) Factual situation

The links between the aims, learning outcomes, teaching/learning and assessment methods of the field and cycle study programmes are well presented at KTU. For each of the subjects, there is a column in the table corresponding to one of the issues that needs to be documented: subject learning outcomes, teaching / learning methods, assessment methods, and study programme outcomes.

The following study methods are applied to achieve the study results of the first cycle subjects within the study programme Electrical engineering at KTU: lecture (mostly used), laboratory work (mostly used), individual project, problem solving, group work, discussion, problem-based learning, modelling, case analysis (case studies), experiential learning, seminar, guest lecturer (practitioner) lectures, design (programming), role plays, mapping of ideas (thoughts), group (team) project, debate, collaborative learning, concept mapping, consulting seminars, design-based thinking, film (project) development (filming), challenge-based learning, creative workshops, reflective learning, research-based learning.

The following study methods are applied to achieve the study results of the second cycle subjects within the study programme Electrical power engineering at KTU: lecture, laboratory works, individual project, problem solving, case analysis (case studies), problem-based learning, consulting seminars, modeling, group work, mapping of ideas (thoughts), discussion, inquiry-based learning, simulations (imitation of real situations), seminar, experiential learning, debate, lectures by visiting lecturers (practitioners).
Methods of evaluation of laboratory works of the researched study programmes are laboratory work defence and / or report, individual project, task solving, design (programming), problem-based learning – individual work, project report, test, problem solving.
The descriptions of the study subjects present the intended learning outcomes of the module (core field subjects are related one outcome), study methods and student achievement assessment methods, annotation, topics, knowledge and skills assessment procedure, basic and additional literature, infrastructure required for classes, self-study procedure, assessment criteria and their connection with study module results. The study results of the subjects are linked to the results of the study programme.
The assessment method of the study results of the subject is related to assessment of knowledge, assessment of understanding and assessment of the abilities of students in sense to solve problems. The assessment method includes a ten-point evaluation scale (10 points - excellent, 9 points - very good, 8 points - good, 7 points - average, 6 points - satisfactory, 5 points - weak, 4 points - unsatisfactory, 3, 2, 1 - minimum requirements are not met).

(2) Expert judgement/indicator analysis

The aims, the learning outcomes, the teaching and learning methods, the assessment methods of all subjects are reasonably written and consistently set together.
The study methods which are applied to achieve the study results of the first cycle subjects within the study programme Electrical engineering at KTU seems reasonable and they are appropriate and compatible.
The study methods which are applied to achieve the study results of the second cycle subjects within the study programme Electrical power engineering at KTU seems reasonable and they are appropriate and compatible.
Methods of evaluation of laboratory works of the researched study programmes seems reasonable and they are appropriate and compatible.
The descriptions of the study subjects in terms of study course learning outcomes and the study results of the subjects are linked to the results of the study programmes.
The assessment method of the study results of the subjects is related to assessment of knowledge, assessment of understanding and assessment of the abilities of students in sense to solve problems.

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

(1) Factual situation

The study programme is presented in the study plan.

The subjects of the first cycle include mathematics, physical sciences, basic engineering, social sciences and general university studies which are concentrated in the first three semesters and they allow to understand the basics of mathematics, natural sciences and social sciences necessary to understand the aspects of electrical engineering. The main technical subjects of the study field are arranged from 3th to 7th semester, and the specific subjects are added to them from the 5th to 7th semester. The 8th semester is reserved for practical skills in the company, where the students in practice learn all from before with practical experience in sense to collect and analyse data and information required for their final project. They see in practice how an effective work is organised, and they get an impression how to offer engineering solutions for addressing specific problems.

The subjects of the second cycle include more advanced subjects, which are conducted in the first three semesters. The last semester is reserved for the master thesis, unique technical problem, which is dealt with during preparation of master thesis: problem statement, then either problem modelling or simulations or experiments, which are analysed and results are interpreted.

(2) Expert judgement/indicator analysis

The list of subjects proves that the first subjects taught are the subjects that include mathematics and physics, which is important in the first years of the university study.

The subjects are selected in a way that their content fulfils the desired study results and subsequent study subjects are determined with consideration on the study results achieved in previous subjects.

One has to know that the first cycle of study lasts 4 years or 8 semesters here. This fact in comparison with similar studies in the most of other European countries, where the bachelor study lasts 3 years (180 credits), indicates more ECTS at KTU (240 credits).

The bachelor theses seem to be on a very good level.

It is clear that examples of theses include probably better theses, but those which were looked, give a fine impression in sense that the work by supervisors is organised well from a good hypothesis and from well defined objectives of the work, to good management of the whole supervising process, which results in a good product, thesis.

The examples of master theses confirm that the level of study in the second cycle is on a high level.

What is especially good is the relations chart between the subjects, which is separately shown for the first cycle and for the second cycle. It gives a well structured information to the teachers in sense what is the pre-knowledge of students at every level. At the same time it

enables easier work for independent assessment of the completeness of the study, which is a focus of this specific point in this subsection.

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

(1) Factual situation

Students can personalise the structure of field study programmes according to their personal learning objectives and intended learning outcomes. This is directed by the University rules and it is implemented in the Faculty in the following way.

Students of the first cycle study have the opportunity to individualize their studies by choosing levelling courses such as mathematics, physics, chemistry, English and information technology. In addition, they can individualize their studies by selecting general university study modules and study programme alternatives, which provide in-depth or complementary competencies. In addition, they have another set of options for individualisation of their studies including additional study modules, additional internships, and what is obvious the final thesis which is always individualised.

Students of the second cycle study have the opportunity to individualize their studies by choosing two paths of the study programme – field expert or interdisciplinary expert. In addition, they can individualize their studies by selecting from four groups of modules: Electrical Energy Technologies and Control, Distributed Generation Systems, Electromagnetic Field Technologies, Energy Converter Technologies, and what is obvious: the internships and final thesis which are always individualised.

(2) Expert judgement/indicator analysis

Students can personalise their study programmes according to their personal learning objectives and intended learning outcomes in several ways, which truly offers them many options.

The options in the first cycle include levelling studies, which help students, which come to the faculty from high schools with less technical pre-knowledge, so they can easily conduct their study. This is a special issue, which is not performed in many universities in Europe and is an additional strength of the study here.

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

(1) Factual situation

The process of thesis: preparation, defence, evaluation and storage of final projects is regulated by the University rules and more specifically by the faculty rules, which are written rules: Methodological Guidelines for the Preparation and Defence of Final Projects.

The contents of the thesis (topic) can be proposed by teachers, by students or by the industrial partners.
The committee evaluates the proposed project topics and approves the list of topics proposed to the students. The topics are announced to students. Students consult with their supervisors when choosing a thesis topic. They prepare the thesis following the methodological requirements and guidelines prepared by the faculty.
The thesis is defended at a public meeting of the study field qualification commission. The qualification commission is formed on the recommendation of the Dean by the order of the Rector according to the University rules. The evaluation commission of the thesis and its defence consists of competent scientists of the study field, professional practitioners, and representatives of employers. The commission consists of at least 5 persons, at least one member of the commission is from another institution.
The thesis is evaluated quantitatively by applying effective mean score rounded to the whole number. The student, if not satisfied with the evaluation score, can file an appeal, which is conducted by the university rules.

(2) Expert judgement/indicator analysis

The written rules for the process of thesis conduction: preparation, defence, evaluation and storage of final projects are detailed and they are focused to the quality of the outcome – good or excellent theses.
The process of theses identification is wide and includes all stakeholders: teachers, students and industrial partners.
The committee which evaluates the proposed project topics works in a transparent way and according to written rules The topics are announced to students, which have equal opportunities. Students consult their supervisors when choosing a thesis topic and during preparation according to the requirements and guidelines prepared by the faculty.
Thesis defence process is procedurally well determined for all scenarios which can happen. Commission consisting of 5 competent scientists of the study field, professional practitioners, and representatives of employers seems higher as it is in some other faculties around Europe, where 3 competent people can be enough. The rule that at least one member needs to be outside of the main institution is an important feature for the quality of the work and of the defence itself. Examination and quantification of the mean score rounded to the whole number seems well selected. An opportunity for students to make an appeal, if they find that the evaluation of their work was different from their opinion, is a way of democratic rules at the university. It is important that the procedure is well written within the rules, so transparency is achieved.
Specific opinion about theses is written also in subsection "*Evaluation of the totality of the field*", two subsections above.

Recommendations for this evaluation area: Panel proposes the faculty to examine if the programming part of the subjects is optimal regarding the pre-knowledge of students, regarding the needs of the research activities and regarding the needs of the industry. The faculty can, based on the outcome of this examination, adjust the study programme at some specific subjects.

3.2. LINKS BETWEEN SCIENCE (ART) AND STUDY ACTIVITIES

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

3.2.1. *Evaluation of the sufficiency of the science (applied science, art) activities implemented by the HEI for the field of research (art) related to the field of study*

(1) Factual situation

The study is related to the research field of electrical engineering. Work is conducted on applied projects and in cooperation with the business sector, some doctoral students from abroad are activated. Teachers involved in teaching in the study programmes "Electrical Engineering" and "Electrical Power Engineering" in the field of Electrical Engineering actively participate in scientific activities. Several national and international projects including scientific activities are carried out.

International activities are conducted together with several partner institutions across European countries.

The financial base for the research activities was increased notably in the last years which is a bright point. The rules for more research results have been administered at university by setting stricter rules for teachers.

(2) Expert judgement/indicator analysis

The research activities are good on the national level, however on the international level there may be some improvements needed. The quality of international publications is in general higher than the quality of national scientific publications.

Researchers of the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology are internationally not well known, with exception of some bright examples. Furthermore, their names in terms of publications and international databases of researchers are in some cases not related with the name of Faculty of Electrical and Electronics Engineering of Kaunas University of Technology but are related with the name of their other institution, where they are partially employed. A clear distinction is needed, which research work was performed at which institution and the results of such results need to be reported in relation with the institution, where the research takes place. If not enough research is conducted at the Faculty of Electrical and Electronics Engineering of Kaunas University of

Technology, some efforts are needed in direction that activities are initiated also at this institution. It seems that this was identified as an issue well ago and activities have been initiated to overcome this difficulty.
A bright point here is for example professor with H index 13 in Scopus database and with affiliation of KTU. Some other examples exist with H index 4 and with H index 2. The panel has only checked a couple of teachers with the largest number of subjects (four or more), assuming they are the persons, which need to be bright examples. The faculty may investigate further how to increase the science and research level in the next years.

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

(1) Factual situation
The study at the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology gives the student the information about the latest scientific and technological achievements. This is partly done through the teaching processes and partly through involvement of students into research activities by doing their work mostly related with internships and final theses. This is the case at both cycles of study, however it is more realised in the second cycle, which is a natural fact at all universities across Europe and wider.

(2) Expert judgement/indicator analysis
Judgement about this question is difficult, but if the internationally recognised research level could be improved, also the related impact to students will be automatically improved with realisation of the firstly mentioned issue.
Some bright examples have been or are being realised by the faculty. It is recommended to go on with such activities.

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

(1) Factual situation
Students can be involved in scientific or application activities related to their study program. Several choices of opportunities include consultations with research mentors on scientific or application issues. Students can participate in student scientific society activities. They can present their scientific results at a student scientific conference organized by faculty. They can get some knowledge with relevant scientific topics in scientific discussions and science popularization events. The most active and motivated students are involved in research project activities, prepare publications, and participate at scientific conferences.

(2) Expert judgement/indicator analysis

The administrative conditions for students to get involved in scientific or application activities consistent with their study cycle are well established. There are several ways how the students, which express their scientific or application potential, realise their vision. Practice shows that the percentage of bachelor students involved in research activities is smaller than the percentage of master students, which is expected.

Recommendations for this evaluation area: none

Comment

Researchers of the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology are internationally not well known, with exception of some bright examples. Furthermore, their names in terms of publications and international databases of researchers are in some cases not related with the name of Faculty of Electrical and Electronics Engineering of Kaunas University of Technology but are related with the name of their other institution, where they are partially employed. A clear distinction is needed, which research work was performed at which institution and the results of such results need to be reported in relation with the institution, where the research takes place. If not enough research is conducted at the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology, some efforts are needed in direction that activities are initiated also at this institution.

It seems that this was identified as an issue well ago and activities have been initiated to overcome this difficulty.

In addition, the quality of research is increased if the researchers are publishing more internationally and they publish in journals with high scientific impact factor.

3.3. STUDENT ADMISSION AND SUPPORT

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

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

(1) Factual situation

The general admission procedure to enrol the students to their selected faculty is regulated by the Republic of Lithuania. The admission rules are established and the students compete in a procedure to become students of the faculty. A documented at least secondary or equivalent education is needed as a prerequisite and candidates need to pass the prescribed maturity

exams, and have their quantitative score of not less than the specified minimum entrance competition score.
There are two sets of students: students enrolled through the state funded programs and students, who pay their tuition fee for being educated.
For the second cycle, the admission procedure to enrol the students to their selected faculty is also regulated. Applicants are required to have finished first-cycle studies, having obtained a bachelor's degree in Technology or Physical Sciences; or a college bachelor's degree in Electronics and Electrical Engineering, Energy Engineering or Informatics Engineering with 60 credits of additional studies or 30 credits of additional studies and at least 1 year of practical experience in the field of electrical engineering.
These applicants are then ranked using a competitive score consisting for 70% of the assessment of subjects in the first-cycle studies, for 20% of an assessment of scientific activity and for 10% of a motivational assessment. The number of applicants and accepted students has been stable in the period 2017-2019.

(2) Expert judgement/indicator analysis

The suitability and publicity of student selection and admission criteria and process are acceptable and well defined. Furthermore, the related procedures seem well written so they can be easily conducted in practice. The quantitative criteria defined at the faculty, which weight several specific criteria for the final score, which rank students by their knowledge being shown, is acceptable and well defined.
The university is making good efforts to increase publicity and the number of admissions. Further opportunities lie in cooperating more with industry and focussing more on making (electrical) engineering more popular in younger school students.
The requirements for the second-cycle studies are adequate and the competitive ranking of the students is fair. The stable number of admitted students (14, 15 and 17 in 2017, 2018 and 2019) and the low dropout rate (11% in 2018-2019 and 7% in 2017-2018) indicates that the program is reasonably attractive and admits students who are a good match for the program.

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

(1) Factual situation

The procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application are examined within a defined procedure at KTU.

(2) Expert judgement/indicator analysis

The procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application seems to be written very well, because it covers most of the cases that can happen and the practical application seems to work well.

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

(1) Factual situation

Students can go to another university abroad through several possible programs including the most known in Europe: ERASMUS. This is possible at any cycle of study and normally covers one or two semesters studying abroad. Administratively, one semester exchange is easier than complete year exchange. Incoming students are easily coming to the second cycle of study, which offers also English language as a teaching language, while the first cycle study is conducted only in Lithuanian language, so it is less interesting for most of the foreign students.

(2) Expert judgement/indicator analysis

Student status regarding the international exchange programs is better in theory than in practice. The number of students going abroad was low years ago (in academic years 2016-2017, 2017-2018 and 2018-2019, respectively 5, 1, and 4 first-cycle students and 3, 1 and 2 second-cycle students went abroad) and the situation is improving now in terms that a larger share of the students are involved in student exchanges. It seems that the Faculty supports exchanges and the students are somehow more hesitating, which may be related also to the average economic status of students. For some of them it would be difficult to accept student exchange due to the economic reasons.

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

(1) Factual situation

The Faculty and University provide comprehensive academic, financial, social, personal and psychological assistance to students. The information about this assistance is publicly available on the University web pages. Student information and service centre is another way of providing information to students about the various means of help.

The GUIDed and GIFTed programs are good examples of special programs of support to students.

(2) Expert judgement/indicator analysis

Various ways of support to students exist at Faculty and University level in terms of academic, financial, social, personal and psychological assistance to students. Good examples are the following. Academic support is possible through mentorship, where students get academic help from their mentor, by mentoring program, by talent academy program. Academic support includes advices to students about career opportunities, which includes organisation of fairs. Financial support is possible in a way of reduced accommodation costs. Financial

support is possible in terms of talented scholarships. The tutoring services seem to be very effective but more students could perhaps be stimulated to make use of them.

3.3.5 *Evaluation of the sufficiency of study information and student counselling*

(1) Factual situation

Admission of students is carried out in accordance with the country law and university and faculty takes part in it as prescribed by the law. In addition, University and Faculty, both help students with required information about the studies to easily decide which way to go. Several events are organised to popularise the fields of study. The ways of informing students are various. These include spoken information at physical attendance at fairs and related events, written materials distributed to students, student information and service centre, which gives information to students.

(2) Expert judgement/indicator analysis

The students are very well informed about the procedures to enrol to the studies. The events related with promotion of studies and relations with the industry are well attended.

Recommendations for this evaluation area: Faculty could encourage mobility of students.

Observation

The number of students is either decreasing or being stable but not increasing. University and faculties are performing some activities to attract students, but some more effort can be expected from this faculty especially because the importance of the field should not decrease by decreasing the number of the students. This is important because there is a need in the industry and in the employment lists. More cooperation with industry can be useful for promotion of the study programmes.

Some excursions of the student teams may help in this process, because students communicate between each other and they are well informed what is happening in this and was in the previous years.

An opportunity for cooperation between students and faculty and industry is the summer time, where for a couple of months the students are free. Faculty can be an integrator between industry needs and the student summer internships at industry.

3.4. STUDYING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT

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

3.4.1. *Evaluation of the teaching and learning process that enables to take into account the needs of the students and enable them to achieve the intended learning outcomes*

(1) Factual situation

The study programs of the Faculty have been prepared in order to achieve the strategic goal of the University, which is to educate and train highly qualified specialists, develop scientific competence and meet the needs of the national economy to develop new products and technologies. Some meetings are organized with program graduates working in the public and private business sectors, who are invited to share their experience in order to achieve a successful career. Feedback from industry is obtained to continuously manage the subject programs in relation to the industrial need.

The study programs employ active learning methods, like individual and group projects, problem-based learning, and discussions. Also, more active assessment methods, like portfolios and reflection, have been introduced. In general, cumulative assessment is used, consisting of a component of the final assessment (exam), a number of intermediate assessments, and an assessment of the student's participation in the active elements of the course. Second-cycle students participate in research work. Students also have the opportunity to participate in a product development project, bringing together an interdisciplinary group of students and developing directional and entrepreneurial competencies.

Additionally, to prevent dropout, levelling courses are organised for some basic subjects, and differentiated education is applied.

Student who wish to continue studying after the first-cycle program can continue to the second-cycle program in the same study field, and excellent students in the second-cycle program are invited to study in the third cycle.

(2) Expert judgement/indicator analysis

It seems that the needs of the students are considered and they have the possibility to achieve the intended learning outcomes. This is proven by the fact that both teaching and learning process are discussed with the industry and the feedback is evaluated and considered for future activities.

According to the industry representatives, students could have more contact with companies during their studies, e.g. through company visits.

A wide array of active learning methods as well as innovative assessment methods are being used. Encouraging the active participation of students is clearly a priority for these programmes. The product development project is also a good example of an innovative active learning method that allows the students to integrate different disciplines and skills.

Although no such problems were presently detected, the study programmes should continue to monitor that the workload resulting from the combination of different active learning methods remains manageable for the students, especially if more active learning methods are introduced.

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

(1) Factual situation

The study conditions ensuring opportunities for socially vulnerable groups and students with special needs are established by written rules at the University and Faculty. In addition, these facts are ensured by the social welfare coordinator of the Department of student affairs, which ensures access to study for socially vulnerable groups and students with special needs in the most appropriate way.

(2) Expert judgement/indicator analysis

The conditions ensuring access to study for socially vulnerable groups and students with special needs are an important issue at the Faculty and University. So important, that there are written documents about those issues within University rules. The social welfare coordinator of the Department of student affairs exists, who deals with directing the issues in the most appropriate way in order not to jeopardise the dignity of students.

3.4.3. *Evaluation of the systematic nature of the monitoring of student study progress and feedback to students to promote self-assessment and subsequent planning of study progress*

(1) Factual situation

Self-assessment of the systematic monitoring of student progress is collected in a written report annually. The indicators of student progress and re-examination are presented in the report (e.g. students' overall average grade, data from interim and final reports of the current semester and records of participation in classes), the quality of new studies is assessed, the effectiveness of the implementation of measures is given, the reasons for termination and interruption of studies are discussed, attendance rates are presented, violations of academic ethics are reported, attendance and testing of equalization courses results is evaluated and other systematic monitoring of study quality and student study progress information are analysed. 5 types of mentors share their experience and knowledge with students: beginning mentor, academic advisor, career mentor, research mentor, and tutor.

(2) Expert judgement/indicator analysis

The self-assessment of the systematic monitoring of study progress of students is an important process at University. This is proven by the fact that a yearly report on all issues, that may relate with this topic, is prepared. It is a detailed document and its findings are used for preparing future actions and directions in order to constantly improve the teaching processes.

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

(1) Factual situation

The students yearly write assessment of studies, which is collected and evaluated and represents the standpoint for improvement of issues related to the course of studies including the contents and way of execution of the teaching process.

Individually, students are given feedback on their self-study tasks and exams by giving grades of those assessments together with oral feedback, through personal conversations and the Moodle forums. Teachers provide individual and group counselling to comment on specific mistakes. Further, teachers can register students who do not systematically participate in their module. This information is monitored by the Early Warning System, together with information about their assessment of modules, and communicates with those students if they have not submitted documents justifying non-participation. This system is set up to identify and prevent potential dropouts, and those students are offered additional consultations and help from academic assistants.

(2) Expert judgement/indicator analysis

The Faculty provides feedback about the assessment of studies, which is collected and evaluated on the yearly basis. Student representatives are informed about this during the round table meetings. In addition, student representatives are informed about this during discussions within faculty bodies where the student representatives are a counterpart.

The oral feedback and consultations form a very complete system of feedback on individual achievements. The supportive approach to prevent dropouts that is taken by implementing the Early Warning system is also commendable, as long as the system of registration of student attendance and its role in the assessment is transparent to the students.

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

(1) Factual situation

Monitoring of employment of graduates and their career is carried out in the field of study. Feedback from the employed graduates is collected.

(2) Expert judgement/indicator analysis

Graduates were employed mostly in companies related to the electric industry, the nature of which corresponds to the purpose of the program. Most of them stated that they were employed while still studying or shortly after graduation. Only a small part of graduates works in other industries.

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

(1) Factual situation

The policy of ensuring academic integrity, tolerance and non-discrimination is considered within the documents of University. No cases of violation of students' academic integrity or equal opportunities were recorded in the period 2017 – 2019 and no penalties were imposed on anyone.

(2) Expert judgement/indicator analysis

The policy of ensuring academic integrity, tolerance and non-discrimination is considered very well and it is regulated by the documents and procedures at the University.

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

(1) Factual situation

The procedures for the submission and examination of appeals and complaints regarding the study process within the field studies are determined at University. An appeal is filed against a student in writing against a written decision made by the University, when the decision may have been made in violation of academic ethics, procedures and/or technical errors. The complaint is filed regarding a possible violation of the student's rights and legitimate interests caused by actions or omissions of a University employee, another student, department, commission or other body operating at the University, study quality assurance, study organization processes, procedures, compliance with the code of academic ethics. An appeal can be applied individually, and a complaint can be applied by one student or a group of students. No appeals or complaints were registered in the SF in the period 2017-2019.

(2) Expert judgement/indicator analysis

The procedures for the submission and examination of appeals and complaints regarding the study process within the field studies are well determined at University. They legally they cover all needed aspects, which protect students and employees.

Recommendations for this evaluation area: none

Observation

The following issue is more an observation that a recommendation. Some section in this evaluation is in terms of its contents different in the Self-evaluation report and in this evaluation document, which is strange. This observation may give an impression that writing the subsections of this evaluation area have not covered exactly the subsections required in this evaluation document.

3.5. TEACHING STAFF

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

3.5.1. *Evaluation of the adequacy of the number, qualification and competence (scientific, didactic, professional) of teaching staff within a field study programme(s) at the HEI in order to achieve the learning outcomes*

(1) Factual situation

The number and the structure of teachers of faculties are planned for the calendar year according to the received state subsidy to finance state-funded study places and collected tuition fees for students of non-state-funded places, as well as other sources of funding, ensuring the average salary ranges set by the University Council.

The number of teaching positions at faculties are determined by the rules of the university. The number considers the ratio students per teacher, which is determined at the university level for the faculties.

Approximately two thirds of teachers are at least 50 % involved in the study. University has clearly defined rules in terms what are the nominal working schemes for teachers, how many hours are devoted to teaching and how many for other issues such as research.

Teachers are appointed to their position after winning a public competition. Fixed-term employment contracts are awarded for a term of 5 years. Persons who are appointed for the second time in a row for the same position of a lecturer or of a researcher shall get a contract with indefinite duration for that position.

The English language level of 19 lecturers is B2 and higher (27% of all 69 teachers), the English language level of 23 lecturers has not been determined.

(2) Expert judgement/indicator analysis

The university rules for determining the number and the structure of teachers of faculties that are planned for the calendar year seems very well determined. Similarly, it is true for clearly defined rules what are the nominal working schemes for teachers: how many hours are

devoted to teaching and how many for other issues such as research. Appointments for 5 years for teaching positions are fine and are common in many European countries.
What is not completely clear from the documentation is the percentage of duties of teachers in their primary role at their primary institution and their secondary role at their secondary institution. Namely from discussions with personnel the panel got an impression that many teachers are part time employed at two institutions, which is not so well.
For the faculty it is extremely important that their most important personnel become employed fully at their own institution in order to prevent conflict of interests which may happen when people are at several institutions in different roles. It is important to distinguish their roles in teaching and in research. E.g. which institution will get the credit for a significant research achievement of a person if it is partly involved in both is a question, which can lead to conflicts.
The English language level of professors seems better than the English language level of lecturers. It is not written, what is the situation with the other foreign language in terms of similar quantitative criteria. One can assume that older personnel in larger percentage speak and understand Russian. It is an advantage if people speak foreign languages.
The internationalism of the university is improved if the language known by the university counterparts is known to people who are involved in direct and indirect activities related to this counterpart institution. As a general recommendation, the faculty would improve their international visibility by an increase of English ability of their staff.

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

(1) Factual situation

University and faculty staff are encouraged to use mobility exchange programs for teaching and learning exchange activities.
Staff reports mobility to the university, which collects the data about the mobility. Exchange of teachers mean that students in the field listened to lectures by foreign teachers and new contacts were established. Teachers bring from their travel exchange some new experiences and ideas, new contacts for future cooperation. They practice their English language skills, get acquainted with institutions of a similar field and their activities and study processes in other countries.

(2) Expert judgement/indicator analysis

University and faculty staff use the exchange programs for exchanges. This is more used in recent past that was the case years ago.
Staff reports mobility to the university. But in the safety evaluation report there is a statement, that not all the staff report mobility, so the complete statistics is not known to the

university. Such a statement is strange and the university needs to handle the situation in a way that they would know when and for how long their employees go for an exchange.
It is important that more and more teachers are using mobility. It is important that this is a two direction process, which seems to be more and more successful at KTU.

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

(1) Factual situation

University supports the continuous implementation of high-level scientific activities of teachers and the improvement of professional and didactic qualification. Teachers improve didactic competencies by participating in basic didactic competencies training and other training of innovative study methods.

(2) Expert judgement/indicator analysis

Conditions to improve the competences of the teaching staff are well established. University supports and offers courses, which are attended by teachers.
The university has a rule about the ability of communication in English language. The situation is improving and more and more staff speaks English better and better.

Recommendations for this evaluation area: The research excellence of the faculty can be improved. Some teachers, who do not publish in international journals with high impact factor, should verify their research level and if needed they should increase it to the internationally compared level.

Observation

The rules for the foreign language of teachers are stated, which is an important way of quality and comparison with other countries (in sense to read foreign research and follow the procedures and activities abroad). It seems that some teachers comply with this rule very well. On the other side, some teachers could do something more in terms of being aware of the importance of foreign languages being an equal partner in the international community.

The internationalism of the university is improved if the language known by the university counterparts is known to people who are involved in direct and indirect activities related to this counterpart institution. As a general recommendation, the faculty would improve their international visibility by an increase of English ability of the staff.

Some professors have many subjects to conduct and at the same time they are employed in some other institutions in some part of their work load. The core professors should be fully employed at the faculty, because the own commitment is one of the most important features of quality of the process – teaching and research in this case. There are always cases where

people partially employed in different institutions come in a position where there is a collision of interests.

The reasons for being partly at several institutions are known and are related to the economic situation and its optimisation at the level of individuals. The tendency of faculty (and even more of university) should be directed in a way that people would like to become the employee of one institution, or in other words a player of one team.

Staff reports mobility to the university. But in the safety evaluation report there is a statement, that not all the staff report mobility, so the complete statistics is not known to the university. Such a statement is strange and the university needs to handle the situation in a way that they would know when and for how long their employees go for an exchange.

3.6. LEARNING FACILITIES AND RESOURSES

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

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

(1) Factual situation

The building of the Faculty has 14 auditoriums with 1100 seats, which includes 3 room with 180 seats each.

There are two computer classes of 12 computerized workplaces acquired licenses for the most important software they are constantly updated. The available resources for computer classrooms meet the needs of students. In addition, an optical cable is installed in the student dormitory and all students living there have safe and fast internet access for independent work.

Laboratories are used for the practical process of teaching students, where students are introduced to modern measuring devices, technological equipment and specialized equipment.

Students can use the faculty library and other libraries.

(2) Expert judgement/indicator analysis

The building of the Faculty with 14 auditoriums seem to suit the study fully. Two computer classes with computerized workplaces seem a good facility for students increasing their computer and simulation knowledge. The fast internet in the student dormitory is a good feature for students.

Laboratories are used for the practical process of teaching students, where students are introduced to modern measuring devices, technological equipment and specialized

equipment. There are several of them and from the video presented it seems that they are on a good level for practical and effective exercises organised for students.

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

(1) Factual situation

University and faculty, both constantly invest in infrastructure renewal and are currently implementing several large infrastructure modernization projects.

(2) Expert judgement/indicator analysis

Evaluation of the planning and upgrading the resources needed to carry out the field studies shows a good process, which is constantly ongoing at the university and at the faculty. The faculty equipment is not outdated and the laboratories serve their purpose well.

Recommendations for this evaluation area: No specific recommendation for this area except that the process of planning and upgrading is never finished, because by the definition it is constantly ongoing and should stay as such.

3.7. STUDY QUALITY MANAGEMENT AND PUBLICITY

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

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

(1) Factual situation

The internal study quality assurance system of the University is described in the Quality Manual. This system is based on the main EU higher education policy documents and complies with the European Higher Education Quality Assurance Regulations and Guidelines and the main laws and legal acts regulating higher education in the Republic of Lithuania. The internal study quality assurance system defines the processes and procedures of quality assurance of studies, as well as provides the documents regulating them.

(2) Expert judgement/indicator analysis

The internal study quality assurance system of the University is defined according to international standards and practice and is well supported by an effective management system, which is established at University and Faculty. Both are established similarly as it is done on well known and successful European Universities.

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

(1) Factual situation

The study quality assurance mechanism is based on the active participation of stakeholders in the study process. Students are involved in governing bodies and operating commissions (council, senate, study program committees, various commissions) at all levels of the University and Faculty.

The common meetings, roundtable discussions with stakeholders from industry are organized annually to discuss the competencies relevant to each field that students should acquire in the study programs. Stakeholder observations on the implementation and quality of the field are considered and implemented. The employment opportunities for graduates are discussed.

The external stakeholders are participating in the final thesis report commissions and they not only evaluate the works themselves, but each year provide comments and conclusions on the quality of the work performed.

(2) Expert judgement/indicator analysis

Involvement of stakeholders, and this especially applies to students and industrial partners, is evident in internal quality assurance. Students are involved in all bodies of management the faculty processes and con contribute to their work.

Evaluation of the planning and upgrading of resources needed to carry out the field studies is managed very well, which is proved by constitution of all commissions and the feedback to the Faculty from all stakeholders.

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

(1) Factual situation

The University website publishes information on study programs submitted for admission, admission requirements for entrants, tuition fees, study results, structure of study programs, accreditation data, acquired qualifications and career opportunities, study subjects and their programs, values of study programs, guest lecturers, options for additional competencies.

(2) Expert judgement/indicator analysis

The collection, use and publication of information on studies, their evaluation and improvement processes and outcomes is well managed and performed. This is stated based on the fact that all necessary information is publicly available.

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

(1) Factual situation

University stakeholder feedback includes feedback and assessments from students, faculty and researchers, administrative staff, alumni, employers and social partners. The surveys respect the principles of voluntary, anonymous, transparent and efficient respondents and take into account the employment of stakeholders, as well as the purposefulness of the collection of opinions and the quality of the tools used.

(2) Expert judgement/indicator analysis

The opinion of the Faculty students about the quality of the studies is collected, evaluated and considered in a way of effective feedback. This is proven by the management of related processes, which include information from feedback for planning of future activities.

Results of student surveys are clearly taken into account in the quality management of the study programmes. The activity rate to the "Student Voice" survey, which is 35%, could be improved to gain more information.

In the results of the student surveys, students mention the scope and content of the practical sessions can be improved.

Students and members of the students' union mentioned that the administration usually responds positively to any input that is gathered from the surveys, including the surveys that are organised by the students' union, and makes changes based on this input. They also organise informal meetings of students to collect information, where they report gathering a lot of useful input they then report to the teachers and administration. Some students want more electrical energy specific courses in the first year, and that they want more basic knowledge on programming. The students are also aware that they can go to the student representatives in case of any problems.

Recommendations for this evaluation area: There are no specific recommendations for this area, which would not be mentioned in previous sections, because some issues from this area partially overlap with some issues in some other areas.

IV. EXAMPLES OF EXCELLENCE

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

1. Some of the theses were reviewed and some excellent examples were found how thesis should look like from the chapters such as introduction with hypothesis, presentation of theory and methods, analysis and results related to own models and the work related to them and clear conclusions.
2. Some collaborations in international research teams of specific individuals at Faculty related to the specific research topic are excellent examples how the teachers should integrate their teaching and research work.

V. RECOMMENDATIONS

1.

The English version of the report itself includes some less appropriate sentences, even some inconsistencies which could be a result of time pressure in writing a report.

The panel recommends in house independent review of the written text when preparing the evaluation documents in future. It is especially important that common phrases are identical through report, because otherwise they give ambiguous information.

2.

The expert panel propose the faculty to examine if the programming part of the subjects is optimal regarding the pre-knowledge of students, regarding the needs of the research activities and regarding the needs of the industry. The faculty can, based on the outcome of this examination, adjust the study programme at some specific subjects.

3.

The rules for the foreign language of teachers are stated, which is an important way of quality and comparison with other countries (in sense to read foreign research and follow the procedures and activities abroad). It seems that some teachers comply with this rule very well. On the other side, some teachers could do something more in terms of being aware of the importance of foreign languages being an equal partner in the international community.

4.

The research excellence of the faculty can be improved. Some teachers, who do not publish in international journals with high impact factor, should verify their research level and if needed they should increase it to the internationally compared level.

5.

Faculty could encourage mobility of students.

VI. SUMMARY

International recognition of Kaunas University of Technology can be checked at the World ranking lists of universities and at the European ranking lists of universities in addition to other means of judging the significance of Kaunas University of Technology.

The Faculty of Electrical and Electronics Engineering is one of 9 faculties of the Kaunas University of Technology. Before the year 2014, there were two faculties which merged in the year 2014 into the faculty today known as the Faculty of Electrical and Electronics Engineering. Such merging is a step towards stronger faculty. The first cycle of study lasts 4 years or 8 semesters. This fact in comparison with similar studies in the most of the other European countries, where the bachelor study lasts 3 years, shows that students here get more subjects and more teaching hours and consequently more competences and invest 1 year of study time and efforts to complete the study more compared to their colleagues in other universities across Europe. The second cycle of study, the master study lasts 2 years.

The study of electrical engineering at KTU creates a study environment that combines practical and scientific excellence in first and in the second cycle study programme. It enables their bachelors of science and masters of science to obtain the skills needed to get suitable jobs in the society, where they fully use the acquired knowledge. The aims and the outcomes of the bachelor and the master study programme of electrical engineering conform to the needs of the society and conforms to the labour market. This is proven by the fact that the engineers who finish the study find the job relatively easy. It seems that if more students would be enrolled into the programme, they would be easily employed. In recent times, the faculty promotes the study of electrical engineering so that more students would be interested for the study, because the industry needs more electrical engineers and more masters of electrical engineering. These facts prove that the faculty keeps an eye to the needs of industry in parallel to observing the interests of students.

The aims, the learning outcomes, the teaching and learning methods, the assessment methods of all subjects are reasonably written and consistently set together.

The study methods which are applied to achieve the study results of the first cycle subjects within the study programme Electrical Engineering at KTU seems reasonable and they are appropriate and compatible.

The study methods which are applied to achieve the study results of the second cycle subjects within the study programme Electrical Engineering at KTU seems reasonable and they are appropriate and compatible.

Methods of evaluation of laboratory works of the researched study programmes seems reasonable and they are appropriate and compatible.

The descriptions of the study subjects and the study results of the subjects are linked to the results of the study programme.

The assessment method of the study results of the subjects is related to assessment of knowledge, assessment of understanding and assessment of the abilities of students in sense to solve problems.

Thesis defence process is procedurally well determined for all scenarios which can happen. Commission consisting of 5 competent scientists of the study field, professional practitioners, and representatives of employers seems higher as it is in some other faculties around Europe, where 3 competent people can be enough. The rule that at least one member needs to be outside of the main institution seems to be an important feature for the quality of the work and of the defence itself.

The building of the Faculty with 14 auditoriums seem to suit the study fully. Two computer classes with computerized workplaces seem a good facility for students increasing their computer and simulation knowledge. The fast internet in the student dormitory is a good feature for students.

The self evaluation report is written in two languages, where the English version of the report was considered the base document, because most of the examination team does not speak Lithuanian language. The English version of the report itself includes some less appropriate sentences, even some inconsistencies which could be a result of time pressure in writing a report.

The panel recommends in house independent review of the written text when preparing the evaluation documents in future. It is especially important that common phrases are identical through report, because otherwise they give ambiguous information.

The panel proposes the faculty to examine if the programming part of the subjects is optimal regarding the pre-knowledge of students, regarding the needs of the research activities and regarding the needs of the industry. The faculty can, based on the outcome of this examination, adjust the study programme at some specific subjects.

Researchers of the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology are internationally not well known, with exception of some bright examples. Furthermore, their names in terms of publications and international databases of researchers are in some cases not related with the name of Faculty of Electrical and Electronics Engineering of Kaunas University of Technology but are related with the name of their other institution, where they are partially employed. A clear distinction is needed, which research work was performed at which institution and the results of such results need to be reported in relation with the institution, where the research takes place. If not enough research is conducted at the Faculty of Electrical and Electronics Engineering of Kaunas University of Technology, some efforts are needed in direction that activities are initiated also at this institution.

It seems that this was identified as an issue well ago and activities have been initiated to overcome this difficulty.

The rules for the foreign language of teachers are stated, which is an important way of quality and comparison with other countries (in sense to read foreign research and follow the procedures and activities abroad). It seems that some teachers comply with this rule very well. On the other side, some teachers could do something more in terms of being aware of the importance of foreign languages being an equal partner in the international community.

The internationalism of the university is improved if the language known by the university counterparts is known to people who are involved in direct and indirect activities related to this counterpart institution. As a general recommendation, the faculty would improve their international visibility by an increase of English ability of the staff.

Staff reports mobility to the university. But in the safety evaluation report there is a statement, that not all the staff report mobility, so the complete statistics is not known to the university. Such a statement is strange and the university needs to handle the situation in a way that they would know when and for how long their employees go for an exchange.

Expert panel:

1. **Prof. Dr. Toomas Rang (panel chairperson)** *academic,*
2. **Prof. Dr. Marko Čepin,** *academic,*
3. **Dr. Isabelle Avenas-Payan,** *representative of social partners,*
4. **Dr. Dainius Balbonas,** *academic,*
5. **Dr. Rolandas Urbonas,** *representative of social partners'*
6. **Mr. Ruben Janssens,** *students' representative.*