CENTER FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD

ELECTRICAL ENGINEERING

at Vilnius Technology and Design College

Expert panel:

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3. **Prof. Dr. Žilvinas Nakutis,** *academic,*
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1. **Dr. Andrius Šablinskas,** *representative of social partners'*
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Report language – English

Vilnius
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Study Field Data*

Title of the study programme	*Electrical and Automation Engineering*
State code	6531EX023
Type of studies	College studies
Cycle of studies	First
Mode of study and duration (in years)	Full-time, 3, Part-time, 4
Credit volume	180
Qualification degree and (or) professional qualification	Professional Bachelor of Engineering Sciences
Language of instruction	Lithuanian
Minimum education required	Secondary
Registration date of the study programme	2012-02-01

** 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 *11th December 2020.*

Prof. Dr. Laszlo Tamas Koczy (panel chairperson), *professor of Széchenyi István University, Department of Information Technology, professor of Budapest University of Technology and Economics, Department of Telecommunications and Media Informatics, Hungary;*

Prof. Dr. Toomas Rang, *Professor Emeritus of Thomas Johann Seebeck Department of Electronics; Tallinn University of Technology, Estonia;*

Prof. Dr. Žilvinas Nakutis, *professor of Kaunas University of Technology, Department of Electronic Engineering, Lithuania;*

Dr. Matthew Armstrong, *senior lecturer of Newcastle University, School of Electrical & Electronic Eng., U. K.;*

Dr. Andrius Šablinskas, *Sales Director at Schneider Electric Lietuva, 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, the following additional documents have been provided by the HEI before the site-visit:

No.	Name of the document
1	Descriptions of eight (8) study courses

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

Vilnius College of Technologies and Design was established after reorganized Vilnius Technical College was merged with Vilnius Construction and Design College by Order No. 785 of the Government of the Republic of Lithuania No. 785 of 1 September 2008. The name of Vilnius College of Construction and Design was changed to Vilnius College of Technologies and Design (VCTD). The College is a public legal entity operating as a public institution. From a legal point of view, the activities of the College are based on the Law on Science and Studies of the Republic of Lithuania. Studies at VCTD are focused on the educating of youngsters for professional work life aiming to create conditions to acquire qualification based on applied research and/or applied scientific activities.

VCTD offers 16 study programs (SP) in 11 study fields (SF). Two of these SF programs are conducted at the Faculty of Design, three SF programs are available at the Faculty of Civil Engineering, and six SF programs are conducted at the Technical Faculty. Studies from the field of engineering sciences dominate at VTDC.

In 2017, the decision was made that due to the decreasing number of applicants one SP from the SF of Electrical Engineering (EE) was merged with another. The new package is titled as “Electrical and Automation Engineering” and is proposed to be evaluated on the basis of SER and site visit in 2020.

II. GENERAL ASSESSMENT

Electrical Engineering study field at Vilnius Technology and Design College 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	3
2.	Links between science (art) and study activities	4
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	3
5.	Teaching staff	3
6.	Learning facilities and resources	4
7.	Study quality management and publicity	3
	Total:	**24**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;
2 (satisfactory) - meets the established minimum requirements, needs improvement;
3 (good) - the field 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 SER has composed on a well readable level. Learning aims and outcomes are described in detail. The study outcomes support the preparation of new specialists in the field in accordance with all together of eight documents as indicated in SER, from which the most important document is the "Strategic Action Plan for 2020–2022", prepared by the Ministry of Energy of the Republic of Lithuania. The main goal in the aforementioned plan is to reach to the integration of energy systems with the European Union and promote sustainable, competitive and efficient development of the energy sector. This focus needs specialists of automation together with the knowledge of electrical engineering and energetics. The SF of EE covers both. The theoretical and practical aspects and they are in a good balance. It concerns both, full-time and part time approaches of the EE Study Program (SP). The needs of society have been described in the SER and confirmed during discussions at the site visit.

The needs of labour market are well elaborated. They are analysed regularly at the SP Committee and College management levels.

The learning outcomes of the SP are in accordance with legal and other regulatory documents.

(2) Expert judgement/indicator analysis

The justification of the SP confirms through the SP aims and outcomes, e.g. because of need for wider competences of graduates the learning outcomes have been updated for certain curses like Electric Machines and Drives, and some other courses as well. This activity has been well reflected also by the social partners and alumni during the site visit discussions.

However, the admission of students is still lacking in volume. Some measures taken by the College were strong, e.g. the decision was made that inside of the Study Field (SF) two SPs were merged into the one with wider focus taking into account the aims of former two SPs, which is to prepare highly qualified electrical and automation engineering specialists, being competitive in the labour market and agrees with the mission, operational goals and the strategy of the College.

Consequently, the number of take-in students lays clearly over the critical level.

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 SER describes a clear understanding of design of courses for the SF of Electrical Engineering (EE). Due to the multidisciplinary character of the college, SF of EE has the better possibility to unite the research and technological development accessible for students and for the public as well, as it is stated in SER and was detected during the site visit discussions.

(2) Expert judgement/indicator analysis

The evaluation team elaborated the content of Courses for SF of EE specific modules and found that expected learning outcomes are in accordance with the content of lectures and practical exercises forming the overall SF of EE study environment for students.

The study aims are in accordance with the needs of society and industrial partners. The critical recommendations from the previous evaluation report have been elaborated and suitable actions have been taken for. For example, the course „Chemistry" was excluded, strongly suggested by previous evaluation, and the new course „Electrotechnical Materials" has been introduced, which reflects the updated scientific and technological achievements this particular activity field and therefore matches much better with the aims of the SP of the EE.

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

(1) Factual situation

The structure of SF of EE complies with the requirements laid down in the legislation and the following documents governing studies: Description of the Study Cycles (Description of the Study Cycles approved by Order No. V-1012 of the Minister of Education and Science of the Republic of Lithuania of 16 November 2016.), General Requirements for Conduction of Studies (General Requirements for Conduction of Studies approved by Order No. V-1168 of the Minister of Education and Science of the Republic of Lithuania of 30 December 2016.), Description of the Group of Engineering Study Fields (Description of the Group of Engineering Study Fields approved by Order No. V-964 of the Minister of Education and Science of the Republic of Lithuania of 20 September 2015.). Compliance of the study programme structure with legal requirements is presented in Table 1 (SER page 8).

(2) Expert judgement/indicator analysis

The SER confirms that the SF of EE complies with all legal requirements.

In addition, during the period after previous evaluation a set of courses have been modified to adapt the learning outcomes of the courses to the aims of the new merged SP. Therefore, in response to the labour market feedback and of the need for specialists with a wider view of competences the courses like "Automation and Control", "Design of Automation and Control Systems", "Management of Building Technological Systems", and some others have been updated.

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

Teaching and training methods traditionally include lectures and exercises, laboratory works and practical projects, both individual and team approaches, and consultations and seminars. Relations between the aim, learning outcomes and study courses for SF of EE "Electrical and Automation Engineering" SP are consistent and clearly presented in Annex 3 of SER, where all 21 learning outcomes for the SF of EE are presented for the new merged SP. These presented aims match well within the SP named 51 courses and finalized topics of graduate thesis at the end of studies.

(2) Expert judgement/indicator analysis

The recent pandemic situation in Lithuania has forced the College to implement the remote study activities as much as possible. However, it was stated during the site visit that the continuation of such a situation for a longer time might harm the quality of getting practical skills during the studies. Nevertheless, seeing from another side, this situation significantly improved the creativity of teaching staff in adapting the courses for the remote teaching and training approaches (some of laboratory works moved to Multisim, Matlab simulation works). It is clearly seen that upgraded teaching and training approaches introduced due to COVID-19 have not influenced (weakened) the general quality level of the SP of EE.

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

All the major and important topics are covered by compulsory or elective courses for SF of EE in SP "Electrical and Automation Engineering". However, there are still available some basic courses building the basic understanding of Electrical Energetics in the SP as well. The SER states that the analysis was made some years ago over the SF of EE "Electrical and Automation Engineering" SP, and there was said that it meets the needs of the society and the labour market.

The SP is divided into three major groups of courses (modules): general College level courses providing the fundamental knowledge base, SF level courses forming the core for the studies which is also the largest part of the SP, and finally the SP original courses forming the specialization for the students.

(2) Expert judgement/indicator analysis

SF of EE "Electrical and Automation Engineering" SP is important and necessary for Lithuanian economy and society, and has plenty of potential due to the world development trends in this activity field of EE. However, many investments from the sector of electrical energetics and automation itself and from the state (e. g. project base activities, European funding, etc.) should be implemented to the College infrastructure continuously in the future to keep and improve the quality level of college studies, as it has been done in the past.

It is clear that the new competences for SF of EE with the knowledge from the neighbouring engineering fields like IoT, 5G and manufacturing processes and quality assurance should be added to attract and increase the admission of students to balance the lack of specialists in the field of EE. The continuity of cooperation with the VGTU and other universities is the crucial factor to reach these goals.

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

The studies with personalized structure for students exist at the College. The freely chosen courses, practical exercises and projects are available. Up to about 20% of SP content can be personalized. It is very important that there exist specific number of courses which can be chosen by the students. If this is missing, then it would be a problem generally. However, in Vilnius College such a possibility exists and this is positive. The final theses allow the next deeper approach to personalize the competences.

(2) Expert judgement/indicator analysis

The personalized studies are one of future trends in higher education. From this perspective, the number of elective courses and remote training percentage should be increased. This is rather a commentative opinion, not a negative judgement. Unfortunately, this is an extremely hard way to go because of additional costs in SF development, both in work force and in infrastructure. Students do have space to work on individual projects in the course "Interdisciplinary projects", which is appreciated by the students.

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

(1) Factual situation

The procedures for defining the final theses (FT) is regulated and described in SER. The forming of the FT defence committee is clearly described in the SER. The content of the FT is regulated as well. The topics coming in majority from the SF of EE teaching staff, but also the industrial partners propose their topics as well. It is clearly seen from the list of titles of the final theses, like "Design of Combined Wind and Hydrogen Power Stations", "Design of Automated Hydroponic Greenhouse", "Accumulation of kinetic wind energy using piezoelectric materials", and many others.

(2) Expert judgement/indicator analysis

The list of FT covers well the majority of interesting topics, like for example "Project of Computerized Painting Robot", "Design of Farm Incubator", "Design of control automation for Administrative building in Vilnius, at Dainavos str. 7", and others from the SF of EE. The majority of FT have practical character, e.g. the theses are targeted to the engineering design activities. However, the word design in the titles could be slightly misleading, because it aggravates to verify the tasks planned to be done in the FT. So, in the future it should be define the titles of the final theses more precisely.

Recommendations for this evaluation area: To continue with innovative actions taking place already during the period after previous evaluation including more knowledges from the neighbouring engineering fields like IoT, 5G and Industry 4.0 into the SF of EE using the existing cooperation with the scientific staff of VGTU.

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

VTDC research bases on involvement of teaching staff in different international R&D activities and industrial projects. The SER describes clearly visible R&D existence at the College and around the SF of EE. Annex 4 in the SER gives the full overview about the involvement of teaching staff in R&D activities presenting their research fields. Unfortunately, the table also introduces the members of teaching staff who are active in research different than the field EE.

At the College, the Science Foundation was established and special research grants for teaching staff are available in three research fields. These research topics are developing together with VGTU. The topics presented in the SER are "Research of smart materials-based kinetic energy accumulation systems and high-resolution drives", "Research and development of methods for identification of AC motors ", and "Research of Multiphase Electric Drive Control". The number of published papers in internationally recognised journals and conference proceedings over years 2017-2019 is 9, as shown in the SER.

(2) Expert judgement/indicator analysis

The international research cooperation exists at the College. However, the number of published papers in internationally recognized journals and conference proceedings should be further increased. Although, positive is the fact that the results of the research work will be highlighted in courses like Electrotechnical materials, etc. From the teaching staff for the SF of EE all together 6 persons have PhD degrees. However, the popularity of participation in R&D activities and obtaining a PhD degree seems to be less popular among the younger members of the teaching staff.

VTDC cooperates with the Faculties of Fundamental Sciences, Electronics and Mechanics of VGTU with the scientific activities. Joint research is carried out and scientific articles are being published. Doing research together, College lecturers can use VGTU equipment. Lecturers of the study field of Electrical Engineering have defended doctoral dissertations at VGTU and have good professional contacts with university researchers. In the SER there is also mentioned collaboration with other national and international HEI's (KTU, Nanjing University).

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

(1) Factual situation

Modern new trends in R&D like machine learning technologies, wireless sensorics, etc. are already built into the content of courses or seem to be planned to do it soon.

(2) Expert judgement/indicator analysis

VTDC encourages the teaching staff generally, but particularly from the SF of EE to build new contacts with the research groups around the world. Positive example can be named as the cooperation with the Nanjing University from China and publishing a joint scientific paper with the researchers from this university.

***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 in the SF of EE are involved in research/applied research activities. Students perform research, present research results at conferences, prepare articles for scientific publications, and carry out experimental development works. According to SER shows (Table 3, page 16) enough high number of involvement of students in experimental development projects or research activities. Totally, 87 students through the years 2017-2019 were involved in R&D activities, which is about 22% of the whole number of students in the SF of EE.

(2) Expert judgement/indicator analysis

The conditions for involvement of students in R&D activities seems to be good. The number of 22% is enough high for colleges generally. The teaching staff actively offers the participation possibilities in R&D activities for students. Positively should be mentioned the activity of the Engineering Faculty (to what the SF of EE belongs), which organises yearly student scientific practical conferences. There was not found evidence about existing related to study field extracurricular activities (clubs) for students.

Recommendations for this evaluation area: To continue with practical measures improving the situation in students' research activities as has been done during the period after previous evaluation.

Try to find additional attractive measures for younger teaching staff participating more in R&D activities and obtaining the PhD degree, which would also raise the number of published papers in internationally recognized journals and conference proceedings.

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

As stated in the SER, the admission of students' takes place through the system of the Lithuanian Association of Higher Education Institutions for general admission, and partly, by direct admission for paid places of studies. The admission of students is done by ranking the best secondary education students based on the competitive score of the entrants to this

program, which is formed from the assessments of four courses. During the assessment period, the requirements for the competitive score for those applying into the study program in the SF of Electrical EE changed yearly. In 2017, the College set a minimum competitive score on 1.6 for the applicants. In 2018, the competitive score was set on 2.0, and in 2019 on 4.3, respectively.

(2) Expert judgement/indicator analysis

This procedure is fully in accordance with national legislation regulations. The suitability and publicity of selection and admission criteria and process for the students are well defined and clearly developed. In addition, the whole procedures seem to be well and easily adapted into practice.

Unfortunately, for over about seven years the yearly admission is still decreasing. This has led to the decision in 2017 to merge two SPs in SF of EE into one. The one possible reason seems to be that only a small number of high school graduates choose Physics and Informatics state exams (around 7%). Therefore, the declining figure of high school graduates leads us to the threatening fact that the number of graduating specialists cannot ensure the sustainable operation of the engineering industries in the future. It was stated that 2/3 of students are from the Vilnius region. State scholarship of 200 EUR (promotion to regional HEI) is not applicable to VTDC students. VTDC is well known for integration of design and technologies. Administration stated it as a strength compared to other applied science HEI's.

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 recognition is carried out in accordance with the procedures for crediting of study results ("Description of the Procedure for Crediting Study Results approved by Order No. 14-1 at the meeting of the Academic Council of 30 January 2015"), which is published on the College's website, as stated in the SER on page 18.

(2) Expert judgement/indicator analysis

It seems generally that the principles for the evaluation and recognition of partial studies, acquired qualifications, etc. are in place. There was not any reported material available about failing functioning of non-formal and self-learning competencies. The accessibility, transparency and objectivity, assimilation, flexibility, and clarity of the procedures are supported by application of non-formal and informal learning.

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

(1) Factual situation

The most used schematics for students to go for studies abroad in Europe is ERASMUS+. In order to promote student mobility and increase their participation in the mobility program, a series of articles "Experiences of Students who tried the Erasmus+ Studies" and "Experiences of Students who tried the Erasmus+ internships" were published on the College website, as stated in the SER, on page 19.

(2) Expert judgement/indicator analysis

The whole system of conditions for ensuring academic mobility looks sufficient. The number of students being involved in exchange had an increasing trend until 2020, when the COVID pandemic situation switched down almost all the possibilities to go abroad and to participate in mobility schemes. The EE study field students itself, unfortunately do not show high willingness to go abroad, but the situation looks more promising in VTDC compared to many other Colleges in Lithuania. A very positive sign to be mentioned is that high enough numbers (22 totally by the SER, p. 19) of incoming foreign students (majority from Turkey) are present at the College in spite of the fact that there is no specific SP or its specialization run in English in the SF of EE. Erasmus students from other countries are being taught individually. The domestic students have chosen their study places in most cases in western universities, like Check Republic, Portugal, etc. It was mentioned that students from Rennes University are coming three year in a row for practice.

VTDC is also organizing Internationalisation@Home activities, like bringing together incoming exchange students with local students in interdisciplinary projects, to facilitate cultural exchange and increase local students' confidence in their English competences. This is a useful addition to the mobility opportunities, and students found this to be a very positive experience.

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

According to the SER, the both College and the Faculty provide academic, financial, social, psychological and personal support to the students. It seems to be adequately concluded by the panel on the base of the discussions with students along the site visit. A set of legal documents regulate these particular activities.

(2) Expert judgement/indicator analysis

The students of the College get support in various ways. Academic, financial, social, personal and psychological assistance is available to the students. Students can get additional

consultations of Mathematics' and Physics. Psychological and other (financial), non-study related counselling is also provided to the students by experts.

Clear legal procedures seem to be applied in special cases of academic problems, e.g. following the document titled "Description of the Procedure for Liquidation of Academic Debts".

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

(1) Factual situation

Accordingly, to the SER, the students are introduced to the study program of the study field and other relevant information through various channels, like College website, but also the library staff gives the information about the with the library's resources and the possibilities of using databases. All relevant information about the study program in the SF of EE is published on the College's website. In addition, the site visit showed that there is sufficient study information available.

(2) Expert judgement/indicator analysis

It seems that the students are very well informed and all the procedures are described with enough deepness. In reality, life differs a bit from the ideal picture, because not all students keep all the available information in mind, especially for these procedures, which are needed very rarely. This evidence was detected during the discussions with the representatives of students at the site visit. For example, students do not seem to be aware of the financial situation related to starting a Masters' degree. A larger gap of knowledge is that they also do not seem to be aware of the College career center.

Recommendations for this evaluation area: Continue promotion of engineering studies in Vilnius region. Keep working with secondary schools (STEAM classes, various competition, support for Mathematics and Physics studies and exam preparation, involvement of social partners, common (student and pupil) extracurricular activities, etc.).

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

Two basic documents form the legal base for evaluation of the teaching and learning process in the SF of EE. These documents are: "Description of the Procedure for the Evaluation of Study Results approved by Order No. 14-1 at the meeting of the Academic Council on 6 January 2017", and "Study Regulations approved by Order No. 14-6 at the meeting of the Academic Council of 20 December 2019". On base of these documents the transparent, reliable, and objective evaluation of students' achievements and achievement levels will be realized. Reliability of the assessment of study achievements is ensured by the involvement of students, lecturers, and management in the assessment process.

(2) Expert judgement/indicator analysis

The system as a set of procedures from documents described in previous section allows to state that the procedures seem to work well, which was mentioned also by the students at the site visit. Reliability of the assessment of study achievements is ensured by the involvement of students, lecturers and management in the assessment process.

The College uses the virtual learning environment Moodle, which contains learning materials, practical, independent work, test tasks, tests, semester paper (project) tasks and methodological instructions, which is especially important now, in the pandemics situation. The MS Teams is used for seminars and group meetings.

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

(1) Factual situation

As stated in the SER, the College aims to provide inclusive and equivalent quality studies for students with special needs and students from socially vulnerable groups. The College provides opportunities for these students to study at an individual base, according to capabilities, needs and interests. During the evaluation of the studying achievements of students with special needs, flexible forms of achievement evaluation are adapted.

(2) Expert judgement/indicator analysis

Students with a limited working capacity are provided with equal opportunity to study at the College. The study process seems to be flexible and can be adapted to the needs of disabled persons by applying various forms of assessment, suitable to the person with disability. The College uses the virtual learning environment Moodle.

Specific measures could be used as well. For example, the font of the task text is enlarged, the time for the examination of study achievements is extended, the physical environment is adapted, ensuring the accessibility of the place and lighting. Also, as stated in SER the College regulates the financial support for the disabled students, e.g. the specific document exists for

such a purposes titled as “Description of the Procedure for Providing Financial Assistance Measures to the Disabled Studying at Vilnius College of Technologies and Design”.

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

As stressed in the SER and confirmed during the discussions at the site visit, the progress of students is systematically monitored in the College and the outcomes of the monitoring are applied to ensure successful learning in the course of the study process. Additionally, the important phase in the monitoring of students’ study progress has been introduced, e.g. the monitoring and analysis of intermediate evaluation results, which is carried out after the completion of a certain part of the subject studies. The outcomes of the semester are discussed at the Dean's office meetings two times a year. The progress summaries for each group of students and the achieved learning outcomes are analyzed, discussed, and made public at faculty community meetings.

(2) Expert judgement/indicator analysis

Both self-assessment and systematic monitoring of study progress of students are an important part of the study process at the College generally, particularly in SF of EE. Reports are composed and published within the SF of EE. The system seems to be effective for the monitoring of study progress, and the necessary measures are foreseen to solve the problematic aspects. For example, the interim evaluations of students help to improve the problematic aspects in the study process. It seems that it has proved to be positive approach that the responsible member of the faculty administration contacts the student and informs the student about the need of additional consultations.

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 feedback system is developed in order to monitor the quality of the study process and is implemented through systematic surveys of as many members of the community as possible. Feedback on learning outcomes is provided to students after the publication of evaluation results. Also, the system for the individual feedback to the students exists in both time line points – during the semester and in the end of the courses, as it was already mention in the previous section.

(2) Expert judgement/indicator analysis

The feedback about the studies is collected and evaluated regularly. Student representatives are informed about the results. Results of surveys are applied to update study programs, improve the organization of the study process, and strengthen the composition and skills of the academic staff. For example, the progress for each study group of students the report is prepared after each session, and they are discussed at the department and SP Committee meetings and published at faculty meetings.

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

(1) Factual situation

The Department representatives are continuously in contact with the graduates. Feedback from the employed graduates is collected. The career monitoring of College graduates takes place on the basis of the data of the Employment Service under the Ministry of Social Security and Labour, the Career Management Information System (KVIS system, developed with the participation of VCTD in the project titled as "Development and Implementation of Models for Higher Education Student Development for Career and Career Monitoring") and surveys conducted by the SP Committees.

(2) Expert judgement/indicator analysis

Most companies related to the electrical and electronics industry are employing the graduates of the College. Majority of students that the panel met at the site visit stated that they were employed already during the study period. The leaders of the SF of EE are involved in meetings and discussions with students and company representatives. For example, recently the meeting with alumni in management positions with recent study field graduates was organized, which could be the start to the series of activities in the future. In spite the fact that not all students use the consultations at the Career Centre, it is positive to mention that some opportunity to get help still exists, for example how to plan the career paths and discover professional career opportunities, how to analyze the Labour market trends and to collect the information about the situation in the Labour market, and how to get the methodological and consulting assistance on the issues of Labour market.

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

(1) Factual situation

A set of legal documents are defining the implementation of the policy of academic integrity, tolerance and non-discrimination in the college and particularly in the SF of EE. The documents are: "The Code of Academic Ethics of Vilnius College of Technologies and Design approved by Order No. 14-6 at the meeting of the Academic Council of 27 June 2017",

"Regulations of the Ethics Committee approved by Order No. 1-74 the Director of Vilnius College of Technologies and Design of 29 June 2017", and "Approved by Order No. 1-37 of the Director of Vilnius College of Technologies and Design of 21 April 2020". Unfortunately, no statistical data was available in this particular section in the SER.

(2) Expert judgement/indicator analysis

The policy of ensuring academic integrity, tolerance and non-discrimination is very well developed and it is legislated and regulated trough College level documents and procedures. On the base of available information, the clear suggestion would be made that in the future clear statistical data should be given in the SER, additionally to the verbal description of the situation, to give the opportunity for experts to get better understanding over the policies to ensure academic integrity, tolerance and non-discrimination.

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

VCTD ensures that students are able to challenge (appeal) the assessment received and receive responses with explanation to the topic of the appeal. The regulation has been improved in the latest document titled "Description of the Procedure for Submission and Examination of Student Appeals Regarding the Evaluation of Knowledge and Procedural Violations approved by Order No. 14-2 at the meeting of the Academic Council of 12 March 2020".

(2) Expert judgement/indicator analysis

The procedures for submission of appeals and complains for the study process are clearly legislated at the College. The steps to be made are described in the document titled as "Description of the Procedure for Submission and Examination of Student Appeals Regarding the Evaluation of Knowledge and Procedural Violations". However, to understand better the approaches adopted, some examples should have been described in the SER.

Recommendations for this evaluation area: To get better understanding over the policies to ensure academic integrity, tolerance and non-discrimination, as well over the effectiveness of the application of procedures for the submission and examination of appeals and complaints regarding the study process within the field studies, the panel would suggest to give in the SER more data and practical examples over the taken approaches.

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 staff for the SF of EE is experienced. A large part of the teaching staff is employed non-full time (SER: table 7, page 28). The percentage of PhD among the staff is sufficient and the attestation of the staff takes place along the legal procedures ordered by the Academic Council of the college: Description of the Procedure for Attestation of Lecturers of Vilnius College of Technologies and Design and Organisation of Public Contests for Positions. (The description is published on the College's website and the Research Council's website. Announced before public contest) approved by Order No. 14-3 at the meeting of the Academic Council of 27 March 2019.

(2) Expert judgement/indicator analysis

The age distribution is normal, which means that the age of the most teaching staff is sufficiently far away from the retirement age. During the last period of the analysis, the number of teaching staff has decreased due to a decrease of the number of students. Still the number of students per teacher is sufficiently good, which is today about four students per teacher. The large retirement process seems to be finished in 2018 and therefore the new younger teaching staff build up a strong competence basis for the development of SF of EE.

The publishing rate of the teaching staff is generally on a well level. However, the publishing distribution among the members of the staff could be better. Teachers, who are doing research, have less contact hours. The career development plan seems to be functioning well at the College. As reported in the SER, the training of new lecturers in the study field for SF of EE is underway. For example, the new teachers start from the position of lecturers through a procedure of competition. In case of approving the candidate for the position, the head of the department provides for a newcomer the mentor, who advises the new lecturer on all work issues that may arise. Lecturers are provided with conditions to study in other higher education institutions and doctoral studies. To have developed such a logic approach, the College career policy seems to be quite similar to other high schools in Europe.

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

(1) Factual situation

The mobility of teaching staff before the COVID-19 time had increased yearly using mainly ERASMUS+ schemes, but also other financial possibilities were used, like College Science Foundation or international scholarships. For example, short time lecturers from Germany, Portugal, Denmark, Finland, and Portugal took part in the study process for the SF of EE at the College. Also, nine domestic lecturers were intensively involved in the study process of foreign students from Turkey studying at the College.

(2) Expert judgement/indicator analysis

The actions taken to improve the situation in mobility have shown in numbers for the mobility of the staff before COVID-19 time. For example, new cooperation agreements have been signed with Zagreb University of Applied Sciences, and with the Czestochowa University of Technology.

Positively should be mentioned that not only the College teachers travelled to other universities or conferences, but also the visitors from abroad visited VCTD and their competences were used keeping the lectures for the students from SF of EE. As mentioned in the section factual situation all together lecturers from 5 countries have been participating in study process of the SF of EE at the College.

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

(1) Factual situation

As stated in the SER, the procedures of evaluation of the quality of teaching staff takes place under procedures described in "Description of the Procedure for the Improvement of Pedagogical Competencies of Lecturers approved by Order No. 14-1 at the meeting of the Academic Council of 17 January 2020." For example, to study the improvement of the qualification and to develop the professionally, the taken actions could be paid for from the state budget funds, College funds, and from other sources. Improvement of lecturer's qualification is planned on both of the faculty and department levels.

(2) Expert judgement/indicator analysis

The conditions for the improvement of the qualification of the teaching staff for the SF of EE well organised and supported by the College. For example, the qualification improvements are paid from the state budget funds for qualification improvement, from College funds or from other sources (when paid by the institution organizing the qualification improvement event). There are financial incentives for the staff who learn and teach in English. There are 40 annual hours of didactic training for the teaching staff.

Recommendations for this evaluation area: Due to the fact that the publishing distribution among the members of the staff is unequal, this distribution should be improved to develop the measures to attract younger members of the teaching staff to be involved more strongly into the R&D activities.

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

After the implementation of the project "Modernization of the study infrastructure of Vilnius College of Technologies and Design" under "Measure VP3-2.2-ŠMM-14-V "Renovation and Development of College Infrastructure'' of Priority 2 "Quality and Accessibility of Public Services: Health, Education and Social Infrastructure" of the Operational Programme for the Promotion of Cohesion for 2007-2013; Project the Modernization of the Infrastructure of Vilnius Technologies and Design Colleges Study Project No. VP3-2.2-ŠMM-14-V-01-007" the situation in study facilities has been continuously improved. However, these measures did not give additional sources for improving the access to world well-known databases, e.g. IEEE Xplore, or others.

(2) Expert judgement/indicator analysis

The panel was presented with video. The situation of the infrastructure and laboratory facilities is extremely well developed, especially taking into consideration the general financial situation in Lithuania and available sources for Universities and Colleges. The European money was very well used for these purposes as it is indicated in SER and in the presented videos made by the college introducing the SF of EE. Due to the rather small number of students, the learning facilities give the excellent possibility for teaching and training the students on a high quality level.

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

(1) Factual situation

The SER states clearly that the development of the laboratory base for SF of EE is a part of the College Development Plan titled as "Project the Modernization of the Infrastructure of Vilnius Technologies and Design Colleges Study" Project No. VP3-2.2-ŠMM-14-V-01-007. Measure VP3-2.2-ŠMM-14-V." However, the text of the Development Plan was not available. The

College is also the partner in the project implemented by Kaunas Technical College "Integration of Open Access Modern Communication Technology Centre into the College Multidisciplinary Training Centre at Kaunas Technical College" under the rights of partner at the end of 2019.

(2) Expert judgement/indicator analysis

The infrastructure required for SF of EE studies is well developed; the laboratories are equipped with advanced technological equipment that is constantly supplemented and renewed. For example, the joint learning facilities renewal project with Kaunas College totaling 195000EUR will be invested by the end of July 2021.

Recommendations for this evaluation area: To continue with practical measures improving the quality of learning facilities and to try to keep them on an achieved level as has been done during the period after previous evaluation.

To improve the measures for giving additional sources to the better access to world well-known databases, e.g. IEEE Xplore, or others.

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 quality assurance system is established at VTDC and for the SF of EE it bases on two documents "Provisions and Guidelines for Quality Assurance of Studies in the European Higher Education Area" and "Internal Study Quality Management System approved by Order No. 14-4 at the meeting of the Academic Council of 22 November 2018". The College Academic Council approves both documents. SER describes and the site visit it confirmed that by the development of the quality assurance system also the recommendations of external experts of SP have been taken into account. Quality assurance responsibilities and design making are distributed among different level authorities at the College, like Faculty dean, SF of EE Committee, etc.

(2) Expert judgement/indicator analysis

The quality assurance has been implemented at the College and particularly at the SF of EE level in a traditional way, used in a similar way at other HEI institutions as well. However, the

SER describes a certain number of actions, like management decisions and levels of responsibility (college, faculty, department, etc.). However, it is difficult to follow in the SER how these actions are connected to the Internal Study Quality Management System. In addition, the Study Program Committee for "Electrical and Automation Engineering'' SP which consists of 5 members is reported in the SER. The question arises whether this committee was formed recently, as it could be followed from the SER, or did it exist also early?

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

(1) Factual situation

As stated in the SER, all stakeholders like students, lecturers, graduates, and employers participate in the process of assessment and improvement of studies of the SF of EE. Different actions like interviews, roundtable discussions are used together with collection of surveys of students, graduates, lecturers, and employers. In cooperation with all parties, the collected data is analysed, and the obtained results are used in improvement actions of quality for SF of EE.

(2) Expert judgement/indicator analysis

During the discussions with graduates and employers at the site visit it was still difficult to understand how the system is functioning in real life. Some of the representatives of stakeholders were weakly informed about the concrete steps to be done, if some changes should be taken for. Finding information about the quality assurance system on the College websites was rather difficult. Some students during the site visit mentioned that they are not aware about the Career center, despite it being a couple of times mentioned in the SER and what they are doing. For students, there is a system in place where every academic group has a leader, who facilitates contact between students and teachers and university management. There also is an active Student union where all the leaders come together and discuss the study process. This is a good system that can increase the involvement of students in quality assurance and help to make sure all students are informed and heard. However, improvements can still be made by better informing the student population, not only group leaders, about the internal quality assurance processes.

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 College provides information to the public about its activities, study programs and criteria for admission, in "Admission Rules for 2017, 2018 and 2019", and in "Study

Regulations and other local documents governing academic activities". Data on the external evaluation of the study program of the EE SF are published on the College's website. Additionally, every year, the College prepares a report, which presents data on student admission, the number of graduates, the average grade for theses and employment results.

(2) Expert judgement/indicator analysis

It was clarified during the site visit that information which is publicly available under different sources seems to be weakly used by different parties, like students and social partners. The formal communication with the students lacks efficiency, because the students, the panel met at the site visit, were somehow insufficiently informed about the results of analysis and that it 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

As stated in the SER, the students participate in the process of assessment and improvement of studies of the SF of EE. In addition, student surveys are organized twice a year, during which the aim is to find out the factors determining the quality of studies: teaching and professionalism of lecturers, quality of services provided, opportunities for personal development and assessment of students' achievements.

(2) Expert judgement/indicator analysis

During the site visit the discussions with students clarified that it was still difficult to understand how the system is functioning in real life. Some of the students were weakly informed about the concrete steps to be done, if some changes should be taken for. In addition, the relatively small number of graduates taking part in program surveys does not allow getting fully reliable information. Therefore, the recommendation made by last evaluation that the feedback system for students should be further improved is still valid today.

Recommendations for this evaluation area: The feedback system for students and employers should be improved and made better visible in the future (web site, increasing survey response rates, etc).

IV. EXAMPLES OF EXCELLENCE

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

An excellent situation of the laboratories for the SF of EE should be mentioned. The College management together with the SP committee has done a great job during last years to achieve this high level in equipping the workplaces at College laboratories compared with the generally good situation in other Colleges seen during site visits in Lithuania this year.

V. RECOMMENDATIONS

1. To continue with innovative actions taking place already during the period after previous evaluation including more knowledges from the neighbouring engineering fields like IoT, 5G and Industry 4.0 into the SF of EE using the existing cooperation with the scientific staff of VGTU.
2. The feedback system for students and employers should be improved and made better visible in the future (web site, etc.).
3. Continue promotion of engineering studies in Vilnius region. Keep working with secondary schools (STEAM classes, various competition, support for Mathematics and Physics studies and exam preparation, involvement of social partners, common (student and pupil) extracurricular activities, etc.)
4. Try to find additional attractive measures for younger teaching staff participating more in R&D activities and obtaining the PhD degree, which would also raise the number of published papers in internationally recognized journals and conference proceedings.
5. Collect longer period statistics about carrier and further development of graduates, changes in remuneration.
6. To get better understanding over the policies to ensure academic integrity, tolerance and non-discrimination, as well over the effectiveness of the application of procedures for the submission and examination of appeals and complaints regarding the study process within the field studies, it would be suggested to present more the data and practical examples over the taken approaches.
7. Due to the fact that the publishing distribution among the members of the staff is unequal, this distribution should be improved to develop the measures to attract younger members of the teaching staff to be involved more strongly into the R&D activities.
8. To continue with practical measures improving the quality of learning facilities and to try to keep them on an achieved level as has been done during the period after previous evaluation.
9. To improve the measures for giving additional sources to the better access to world well-known databases, e.g. IEEE Xplore, or others.

VI. SUMMARY

The SER reads well, is logically composed, and contains all necessary information. The site visit clarified some minor misunderstandings from the SER. The positive aspects are as follows:

- The study aims, outcomes and content are developed on a very good level;
- Links between science and study activities are of very good level, but unequal distribution of R&D activities between the whole teaching staff did not give the possibility to grade this area with excellent;

- Student admission and support is developed on a very good level taking into account the situation in the field of engineering sciences in Lithuania;
- Studying, student performance and graduate employment area is very well elaborated for the SF of EE at the VTDC;
- The teaching staff is very well prepared, the number of PhD holders is sufficiently high and the total quality level teaching staff is high;
- The learning facilities and resources are exceptionally well developed. All the stakeholders stressed this situation specially.

Weakness to be mentioned:

- The study quality management and publicity seems to cover all details in an adequate way, but to be effective in real life some developments need to be taken in the future. Especially the visibility and formal communication with students should be better elaborated.

Expert panel:

1. **Prof. Dr. Laszlo Tamas Koczy (panel chairperson)** *academic,*
2. **Prof. Dr. Toomas Rang,** *academic,*
3. **Prof. Dr. Žilvinas Nakutis,** *academic,*
4. **Dr. Matthew Armstrong,** *academic,*
5. **Dr. Andrius Šablinskas,** *representative of social partners'*
6. **Mr. Ruben Janssens,** *students' representative.*