CENTER FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

_____

EVALUATION REPORT

STUDY FIELD

MECHANICAL ENGINEERING

At Klaipeda State College

Expert panel:
1. **Prof. dr. Oluremi Ayotunde Olatunbosun (team leader)** *academic,*
2. **Prof. dr. Jasmina Casals-Terré,** *academic,*
3. **Prof. dr. Bojan Dolšak,** *academic,*
4. **Dr. Vaidas Liesionis,** *representative of social partners'*
5. **Ms. Erika Tichanovič**, *students' representative.*

Evaluation coordinator – *Ms. Evelina Keturakytė*

Report language – English

Vilnius
2021

Study Field Data*

Title of the study programme	***Mechanical Engineering***
State code	6531EX013
Type of studies	Higher education college studies
Cycle of studies	First
Mode of study and duration (in years)	Full-time (3 years) Part-time (4 years)
Credit volume	180
Qualification degree and (or) professional qualification	Professional Bachelor's Degree in Engineering Sciences
Language of instruction	Lithuanian
Minimum education required	Secondary education
Registration date of the study programme	30-08-2002

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

CONTENTS

I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

The 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) visit of the review team at the higher education institution; 3) production of the evaluation report by the review team and its publication; 4) follow-up activities.*

On the basis of 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 is **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 is **accredited for 3 years** if one of the evaluation areas was evaluated as "satisfactory" (2 points).

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

1.2. THE REVIEW TEAM

The review team was completed according he 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 Review Visit to HEI was conducted by the team on *December 1, 2020*. Due to the coronavirus pandemic, the Review Visit was organised online using video-conferencing tool (MS Teams).

1. **Prof. dr. Oluremi Ayotunde Olatunbosun**, *Honorary Senior Fellow in the Department of Mechanical Engineering at the University of Birmingham, UK.*
2. **Prof. dr. Jasmina Casals-Terré,** *Associate Professor (Accredited as FULL PROFESSOR by AQU), Department of Mechanical Engineering, Universitat Politècnica de Catalunya (UPCBarcelonaTech, Spain*
3. **Prof. dr. Bojan Dolšak,** *Dean of the Faculty of Mechanical Engineering, University of Maribor, Slovenia.*
4. **Dr. Vaidas Liesionis** *LT AB Astra general Manager, Lithuania.*
5. **Ms. Erika Tichanovič,** *student of Vilnius University of Applied Sciences.*

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.	Study subject descriptions (Pneumatic Drives, Materials Processing Processes, Technological Equipment, Technological Transport (A1), Robotic Cells (A2), Robot Programming (A2), Computer Production Design, Technical Operation of Equipment)

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

Klaipėdos valstybinė kolegija / Klaipeda State College (hereafter referred to as the KVK, the college) is a state higher education institution of the Republic of Lithuania. On 6 August 2009, Klaipeda College was merged with Klaipeda Business and Technology College and a new name was given - Klaipeda State College. On August 24, 2011 KVK status was transformed from a budgetary institution to a public institution.

KVK trains qualified specialists in the fields of technology, engineering, informatics, social, business, and public management, education, health sciences and has a rich experience and long-term traditions in their training. KVK studies are focused on the practical application of scientific knowledge, close cooperation with the world of industry and business.

The first cycle Professional Bachelor's study programme *Mechanical Engineering* (state code – 6531EX013) (hereafter referred to as the study programme, ME) was registered in the Register of Studies, Training Programmes and Qualifications on 30 August 2002 and started to be implemented from 1 September 2002.

The self-evaluation report (hereafter - SER) for the present evaluation was carried out by a self-evaluation team appointed by the order of the Director. The self-evaluation group consisted of the one professor, four lecturers, one student and one social partner and was headed by the Head of the SER group.

II. GENERAL ASSESSMENT

Mechanical Engineering study field and **first cycle** at Klaipeda State 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	3
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	4
5.	Teaching staff	3
6.	Learning facilities and resources	4
7.	Study quality management and publicity	4
	Total:	**25**

*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 study programme aims and learning outcomes conform with the manpower needs of the Klaipeda region Industry. They should facilitate the training of Mechanical Engineers required to meet the labour manpower needs of the long-term strategy of Lithuanian economy until 2030 which requires highly trained professionals for the industry in this region.

The aims and learning outcomes are defined in terms of both the academic content and professional requirements for Bachelors' studies in Mechanical Engineering (hereafter referred to as ME), which conforms with the high-level manpower needs of the labour market in the country and specifically in the Klaipeda region.

SER (In the year 2018, a survey of employers of Western Lithuanian companies on the readiness of KVK graduates for the labor market showed that as many as 91.67 percent of employers positively assess the compliance of the competencies of trained ME specialists with the needs of the labor market.)

(2) Expert judgement/indicator analysis

It is noted the high demand for Mechanical Engineering specialists in Lithuania. Hence, mechanical engineering field studies can contribute to meeting the needs of the industry, especially in the Klaipeda region.

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 aims and outcomes of the field and cycle study programme are to train mechanical engineers needed by the labor market who have high professional practice, capable to anchor themselves in national and international markets. This conforms with the general goal of KVK to produce future specialists with advanced practical and applied research skills, able to perform experimental development and to practice lifelong learning.

(3) Expert judgement/indicator analysis

The overall mechanical engineering study field aim is perfectly in line with the vision and mission of KVK.

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

(1) Factual situation

The design of the ME study programme meets the requirements of *Description of Study Cycles* (Order No. V-1012 of the Minister of Education and Science of the Republic of Lithuania,

2015), *General Requirements for the Conduction of Studies* (Order No. V-1168 of the Minister of Education and Science of the Republic of Lithuania, 2015), and the *Descriptor of the Study Field of Engineering* (Order No. V-964 of the Minister of Education and Science of the Republic of Lithuania, 2015).

The Professional Bachelor's Degree in Engineering Sciences scope is 180 credits while the scope of full-time study is 30 credits per semester and part-time 21-24 credits per semester. Credits to accomplish study results of the study field amount to 155 credits. Preparation for final thesis and examination is 12 credits and internship is 36 credits. All of these comply with the legal requirements for the field and cycle of study. The contact hours for each course module are at least 46%. Over 29,86% of academic staff are scientists. SER (Table 1.1 summarizes the requirements).

(2) Expert judgement/indicator analysis
The study programme is in compliance with the legal requirements.

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

(1) Factual situation
Eleven learning outcomes of the field and cycle study programme are expressed in terms of the knowledge, skills and abilities, which the graduate of the study programme should acquire, and are summarized in Table 1.2 of the SER.

The study programme subjects are arranged in such a way that the content of the study subjects fulfils the study programme learning outcomes and the study subjects are arranged in a sequence such that the competences are developed in a logical manner and subsequent study subjects are based on the learning outcomes achieved in the previous study subjects. The matrix of relations between the study programme outcomes and subject outcomes is presented in Table 1.3 (SER) and it shows how the envisaged competences are developed in individual subjects. However, some learning outcomes (hereafter – LO) (such as 6.1, which is "*Is able to make engineering decisions responsibly, creatively, independently and in a team, taking into account their impact on society and the environment in accordance with the norms of professional ethics and engineering activities, while informing the engineering community and the general public*") are listed as LOs for Computer–aided Manufacturing Design 1 and 2. It is not clear how these subjects can contribute to L0 6.1. In general, there is a clear correspondence on how the individual subject learning outcomes contribute/map into the study programme learning outcomes (Table 1.3 SER). However, the review team didn't have access to the card modules in English of these two subjects to see exactly how it contributes to this LO.

In the other LOs, there is a good mix of teaching and learning methods that are used to deliver the courses, which are appropriate for achieving the desired learning outcomes such as lectures, practice, laboratory work and projects (individual and group). Assessment is also based on a mixture of coursework, presentations and examinations, which is appropriate.

The LO are regularly updated. SER (During the period of 2018-2020, the study programme was reviewed and improved, in the year 2019, the KVK has adjusted learning outcomes of the study programme and subjects, added new subjects, updated subject topics, and lists of information sources).

(2) Expert judgement/indicator analysis
The teaching/learning and assessment methods are compatible with the aims and learning outcomes of the field and cycle study programme. A revision of the individual subject LOs and

the matrix is recommended to harmonise the study programme LOs with the study subject LOs.

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 order of the study subjects is logical, starting with general science and engineering subjects in the first year, necessary for the student to develop basic knowledge and cognitive skills in mathematics, physical sciences, informatics, mechanics, material science, technical drawing and professional communication. In the second and third years, the subjects of mechanical engineering are taught in a logical sequence to enable the competences to be developed in a gradual manner, also providing the necessary knowledge and skills for the final thesis work.

(2) Expert judgement/indicator analysis

The totality and sequence of the study subjects, including the internships and final thesis enable the student to develop the competences required of a graduate of the field and cycle of study.

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 students have the opportunity to personalise the structure of their field of study programme by free choice of up to 6 Credits (2 subjects of 3 credits each) and they can also choose two alternatives (in other words, small specialization): Technological equipment and Robots (2 subjects of each). Students may also choose full-time or part-time studies to suit their particular circumstances. Students study a foreign language in the subject "Professional Foreign Language", which is English.

(2) Expert judgement/indicator analysis

The study programme provides the ability for personalization of the study programme by free choice of around 14 Credits of a total of 180 credits plus the practices and final degree project, which is good.

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

(1) Factual situation

According to the list of final projects presented, the topics presented are all for the area of ME and some of them are related to nearby industry relevant topics. SER (*95 percent of Bachelor theses are prepared according to the orders of KVK social partners.*)

The final degree projects are regulated by a regulation for the preparation, defence and storage of the KVK Bachelor Theses and there are training sessions to explain how to prepare the thesis (SER *Procedure for preparation, defence, and storage of KVK Bachelor theses* are published on the KVK website).

According to the SER, a commission reviews the suitability of the Bachelor thesis topic, consisting of the lecturers of the study programme, and also it authorizes the defence. The defence committee, with at least two social partners, evaluates the student's performance.

Regarding the Bachelor thesis topics, which were provided in the SER, most of them were related to KVK social partners' needs. As described in SER "*95 percent of Bachelor theses are prepared according to the orders of KVK social partners*."

No mention in the SER about if the plagiarism is checked.

(2) Expert judgement/indicator analysis
The Bachelor thesis are relevant topics in ME study field, and some of them are linked to industry related topics.

Recommendations for this evaluation area:

1. *In order to present a more coherent and consistent information, it is recommended to unify the presentation of LO in the SER, study descriptions provided and website. For instance, subject Computer production design included in the Study descriptions is not in the SER. Verify that the subjects computer–aided Manufacturing Design 1 and 2 have activities to contribute to LO 6.1.*
2. *The study plan is traditional and there is room to introduce more conventional and new technologies, such as combustion engines, smart industry (Industry 4.0), additive manufacturing and new programming languages such as python.*

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 college organizes applied research teams, involving teachers and students, since students from second year are introduced to research methodology. The social partners provide topics in the round table meeting. Some of the funding comes from the employers and some from the college.

Section 2.1.1 of the SER lists 8 applied research projects being executed by researchers and pedagogical staff in the field of ME, all of which are focused on the sustainability of the industrial sector in the Baltic region. These include Sustainable Environment topics: New Production Processes, Materials, and Technologies; Environmentally Sustainable and Friendly Transport Technologies with Less Pollution… Also listed in Section 2.1.1, 14 reports are presented to international conferences by the ME staff. Researchers published 9 scientific papers mostly in national scientific journals, with low impact factor and performed 8 consultancies to local industry.

According to SER and the interviews, the college has established a strategic plan to enhance the competitiveness and quality of applied research. This strategic plan measures:
1. *Proportion of lecturers engaged in applied research activities from the relative number of lecturers*;
2. Percentage of students participating in applied research activities and presenting papers at conferences.
3. *Publications published in journals, referenced in international databases*.
4. *Ratio of lecturer's scientific publications in international databases to the total number of lecturer's publications (percentage of scientific publications from ME teachers to total number of lecturers publications).*

This strategic plan has a financial plan behind, since Researchers', working in the field of Mechanical Engineering, has established time for R&D activities which should be devoted to performing applied scientific research, scientific publications, and their dissemination, in line with KVK priorities. The material resources necessary for the performance of R&D activities are planned by preparing procurement plans annually. Lecturers are motivated by one-time payments after each publication in accordance with the procedure approved by KVK. The amount of benefits depends on the significance of the publication. Besides, the teachers can enhance their qualifications studying masters and/or doctorate, doing internships in Lithuanian and foreign research and training institutions, whilst having their salaries paid, obtaining leave, and by creating a flexible work schedule.

SER (Research in the field of Mechanical Engineering is planned according to KVK priorities, 2-3 new researches are initiated per year and then, the research teams are formed: from the research initiator – the supervisor and researchers. Lecturers are encouraged for research results by paying them fixed amount bonuses for published articles if the research is carried out on the orders of business enterprises or institutions).

SER (The Department of Engineering and Informatics has provided Applied research activities and measures for the field of ME and evaluation criteria and their values, which respond to and help to ensure the competitiveness and quality of applied research, for example, Proportion of lecturers engaged in applied research activities from the relative number of lecturers; Percentage of students participating in applied research activities and presenting papers at conferences, Publications published in journals, referenced in international databases, ratio of lecturer's scientific publications in international databases to the total number of lecturer's publications (percent), etc. During the years of 2017-2019, the percentage of implementation of the criteria achievement values in the field of Mechanical Engineering was quite high; the average was 69-100 percent. (2017, 2018, 2019 Department annual report).

(2) Expert judgement/indicator analysis

The industrial consultancies are an important contribution to the economy and industrial development of the Klaipeda region and strengthen the collaboration between academia and industry, however do not have a strong international impact. Publications of research are mostly focused on local industrial topics, which give some publications mostly to national scientific journals and few international. However the volume of publications needs to improve since the number of publications over a period of 3 years is not sufficient for the staff strength.

The measure of the quality system to ensure the quality and quantity of applied research are well chosen and the values follow a good trend, however focused at national level and pedagogically focused.

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 Program Committee (SPC) reviews annually the structure of the study programmes, paying special attention to the titles of courses units/modules and in its content.

The link between the studies and latest developments is mainly established through the strong collaboration with industry. Therefore, the contents are more linked to applied research than to state-of-art developments.

(2) Expert judgement/indicator analysis

The contents of some of the taught subjects include recent developments in Mechanical Engineering technology, however there is less impact of the latest state of art development in Mechanical science, such as combustion engines, additive manufacturing or Fourth Industrial Revolution (Industry 4.0).

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

(1) Factual situation

The students have the opportunity to do their internship in the local industrial companies where they can be involved in the research activities developed by the local companies. Data gathered during this research is then used to prepare a report in the subject of Applied Research Methodology. In some cases this report is enhanced to a publication that is presented to a conference or a low impact scientific journal. For instance, in 2018, 2,4 % of the students presented the results of their internship research in a conference or low impact scientific journals, in 2019 where 11.6% and in 2020 where 2.7%.

(2) Expert judgement/indicator analysis

The students are incentivized to be involved with applied research activities especially in collaboration with the companies where they do the internship and through the subject of Applied research methodology and there are examples of students presenting their work at national conferences. This motivation is good and it is producing good results.

Recommendations for this evaluation area:

3. *The measure of the quality system to ensure the quality and quantity of applied research are well chosen and the values follow a good trend, however it is important to focus on international level activities*
4. *Increase the volume and quality of publications resulting from scientific research projects in particular at international level.*
5. *Increase the activities to involve students in research activities.*

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 admission is arranged by Republic of Lithuania Ministry of Education, Science and Sports and it is based on the competition score for Nationals. The SER describes clearly how the competitive score is calculated. According to it, the positions that are not financed by state, KVK has defined a list of items to be considered in the competitive score that are focused on the relation of the CV with the study field.

The college promotes their studies by programming outreach for younger perspective students such as: participation in Spaceship Earth, Researchers' Night, lectures in gymnasiums.

Table 3.2 of the SERs shows the number of admitted students and Table 3.3 shows the competition scores. In terms of the competition score there is a positive trend in the

maximum and minimum competition score, since the admission score has increased over the past years. However, this has caused a decrease in the number of admitted students. In the years 2017 and 2018 it was around 20, half of the ones who wished to study in this field but they do not meet the minimum requirements. In 2019, from the 31 candidates only 5 met the minimum requirements and the admission was cancelled.

(2) Expert judgement/indicator analysis
The admission criteria are clear and well defined in the SER. The English web-site seems to be focused to studies offered in English.

HEI is promoting the study programme among the prospective students giving lectures to high schools, attending the Researchers' Night and so on. There is an urgent need to focus these activities to highly talented students from both genders who can later meet the minimum requirements.

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 SER describes the procedure defined by KVK for the procedure of recognition. A studied subject can be recognized if it overlaps with at least two thirds of the contents of the study subject presented, and meets the essential objectives and the main parts of the subject content. Elective subjects are recognized without restriction. Bachelor thesis cannot be recognized. A maximum of 75 percent of the scope of the study programme can be recognized.

Data of the last 3 years recognized credits is presented in Table 3.4 of the SER. According to that Table in 2017, 4 students applied for recognition, and 352 credits were recognized for previous learning outcomes and 36 credits were recognized for Erasmus+ studies. In 2018, 8 students applied for recognition, and 382 credits were recognized for previous studies, while 26 for Erasmus+ studies. In 2019, 4 students prepared crediting cards for learning outcomes and 118 credits were recognized for prior knowledge, while 27 credits for Erasmus+ studies.

(2) Expert judgement/indicator analysis
The procedure for recognition of foreign qualifications, partial studies and prior non-formal and informal learning appears to be fair.

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

(1) Factual situation
KVK uses the ECTS for seamless transfer of study credits between institutions. There is a twice-yearly presentation for students who wish to participate in the Erasmus+ mobility programme. The presentation details are sent to the student by e-mail and is publicised in the bulletin board. There are choices of mobility between 16 different countries and about 58 cooperation agreements in various fields. No students are coming from abroad to study at KVK during the studied period and only 5 students have left KVK to study abroad during the evaluated period (3-2017, 1-2018 and 1 in 2019).

According to the SER the International Relations Department is actively promoting the student exchanges and twice a year organizes meetings with students. During the interviews, the students agree on the reasons presented in the SER to avoid mobility during their studies.

SER (A student survey was conducted to find out the reasons for students' reluctance to participate in exchange programmes. The main reasons identified by students are: loss of a

job if the student works while studying; academic differences that may arise after returning from partial studies (it is not always possible to accurately coordinate the subjects studied during the semester); reluctance to change the study environment*).*

(2) Expert judgement/indicator analysis
Academic mobility of students is encouraged and transfer of credits for study abroad is straightforward by the adoption of ECTS. Still, the participation rate in mobility is low and no incoming students are choosing KVK. More actions should be taken to internationalize the studies.

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
Academic support is provided through consultations provided by Lecturers in their consultation schedule, and about more general academic issues, they can get information in the Dean's office, Department, Study and Career Center.

Free psychological counselling is available for students who ask for it.

Apart from state funding of some students, students at KVK have the opportunity to receive an incentive and one-time scholarship. The incentive scholarship is awarded according to student's progress and a one-time scholarship is awarded for active participation in applied scientific, sport, social or cultural activities.

Disabled students receive targeted support.

According to SER Table 3.5 every year around 35 to 44 one-time scholarships are given.

(2) Expert judgement/indicator analysis
KVK provides sufficient financial, academic, social and physiological support to the mechanical engineering field students.

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

(1) Factual situation
During first year studies KVK has an adaptation programme for first year students. This programme familiarizes the students with all the issues related to college studies. Besides the first week of studies Vice-Dean introduces students' rights and responsibilities, Head of the Department presents the study programme and the librarian presents where to obtain information. There is a tutoring system, each student is part of a small group which has an assigned tutor.

Student representatives are part of Study Programme Committee (SPC) and KVK Academic Council.

There are also Career days for Career counselling.

(2) Expert judgement/indicator analysis
The student counselling and support is focused on academic issues and few on professional career or research career.

Recommendations for this evaluation area:

6. *Increase the efforts to promote the study programme among highly talented students from both genders who can later meet the minimum requirements.*

7. *Increase efforts to promote international mobility of students in-coming and out-going.*
8. *Improve the look and the content of the college website, especially in the English version: include all the information of the description of all the subjects, LOs, assessment methods and so on.*

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

54% of the entire scope of the study subject is achieved by the student through independent work. The teacher defines the number of intermediate assessments and their values in percentage. Information about the aim and objective of the works, assessment methods are given in the first lecture in a course unit, together with the planning of the independent work that needs to be done and the specific tasks to be delivered and resources committed for each task. Each of the deliverables is assessed and there is consultation that the students can attend.

A variety of study methods is provided that include individual study (homework, laboratory work, module test) and team working (presentations and discussions).

Student representatives are included in the Study Programme Committee, KVK Academic Council and Council. Career days are organized for students every year, during which information is provided about further opportunities for graduate studies and career opportunities.

According to the interviews with students and alumni, feedback is provided to the students in a timely manner.

(2) Expert judgement/indicator analysis

Details of course subjects in terms of teaching and learning methods, assessment methods given to students enable them to plan their study.

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

(1) Factual situation

KVK has several grants that can be granted depending on social needs: grants for learning results, one-time grants, and social grants. KVK environment is adapted for students with special needs. Students with special needs can adapt their study plan in terms of schedule and attendance and particular consultations. Teachers have been trained on how to adapt their teaching to be more effective for students with special needs (SER course: “Increasing the Accessibility of Studies”).

(2) Expert judgement/indicator analysis

KVK has made considerable effort to ensure that students with special needs as well as socially vulnerable groups have access to study at the college.

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

(1) Factual situation

The methods of achievement assessment are chosen by the coordinators of the study modules. The teacher defines the number of intermediate assessments and their values in percentage. ME studies follow a cumulative assessment of learning outcomes: assessment of project, practical activities, student project presentations, assessment of group projects etc.

According to SER, the system and criteria for assessment of independent work is provided in accordance with the procedure for the assessment of KVK study achievements.

The students' survey about quality of studies and the interview answers shows that ME students evaluate positively the use of active study-oriented methods.

SER (The results of the survey of KVK students' satisfaction with the quality of studies showed that the students of the ME study programme evaluate the use of active study-oriented study methods positively. This may have been influenced by the participation of lecturers in the field of competence development training: Application of mobile apps in the study process, Coherence of student-centered learning, teaching and achievement assessment, Virtual learning: opportunities and benefits.).

(2) Expert judgement/indicator analysis

Details of course subjects in terms of teaching, learning methods and assessment methods given to students enable them to plan their study.

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 study progress is mainly monitored by the lecturers. However, there are two more levels of evaluation: Department and Faculty. Twice per semester, the department in a round table tries to clear up the imperfections (weaknesses) of the contents and realisation of certain course units; in addition, their causes are analysed and to equilibrate the course work loads. At the end of the semester, the Faculty analyses the study programme achievements (number of students who completed their studies on time).

KVK uses the Advanced Study Management System (EDINA), and other IT tools such as Moodle to provide assessments with individual comments to all the evaluated tasks. The students' satisfaction survey during the analysed period and the answers to the interviews shows that the students are satisfied with the feedback received.

SER (According to the data of the KVK students' satisfaction with the quality of studies (2017-2019), the students of the ME study programme are satisfied with the feedback provided by the lecturers on a regular basis.).

At Faculty Level, at the end of each semester the dropout rate is analysed in order to identify the cause and try to actuate if needed.

SER (At the end of each semester, students' achievements are analysed at the faculty level according to study programmes and study subjects, the results are presented to the academic community of the faculty. For example, the share of students who completed their studies on time in 2018 is 36 percent in 2019 – 62 percent. Most students who terminate their study contracts are in their first year of study. A survey of students who have dropped out of studies

is conducted on a regular basis in order to identify problem areas and improve the study process. The main reasons for dropping out of studies can be divided into three groups: personal – changed work or residence, changed family or health situation, etc.; financial – lack of funds for living or tuition fees, economic emigration, etc.; academic – inadequate choice of study programme and non-compliance with student's needs, weak student's readiness to study, lack of motivation and responsibility for their study results.).

(2) Expert judgement/indicator analysis

The feedback provided to Mechanical Engineering field students in the course of the studies is sufficient to promote self-assessment and subsequent planning of study progress.

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

(1) Factual situation

Employability of graduates is evaluated using a survey to the graduates and through the data of State Social Insurance Fund Board under the Ministry of Social Security and Labor, the Employment Service, the Government's Strategic Analysis Center. According to the Data from Government's Strategic Analysis Center (STRATA) for 2017–2018 after 12 months from the graduation 100% of graduates in 2017 were working and 85% of graduates in 2018 were working. An average of 28 % of graduates 12 months after graduation was holding important positions in their companies.

Employer's surveys positively assess the level or readiness of the graduates.

(2) Expert judgement/indicator analysis

The outcomes for Mechanical Engineering field studies graduates are good. Their employability is excellent and they are satisfying the need for mechanical engineering specialists in the Klaipeda region.

The strong network of industry that relates with the college provides information about the acquired competences after graduation or any detected needs of improvement.

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

(1) Factual situation

"KVK Code of Academic Ethics" defines the principles and means of ensuring academic integrity, tolerance and non-discrimination. The student must behave honestly during their studies and each signs a study agreement with a declaration of academic integrity. It requires that assessment of a student's knowledge, abilities and skills must be fair, honest, impartial and consistent with the objectives of the course being taught.

KVK organizes meeting to explain the principles of academic integrity, tolerance and non-discrimination to all the college members.

According to the student survey the answer to the question: Is the academic integrity of the students ensured" it received a value of 4,48/4,35 out of 5.

According to the SER "No cases of violation of the principles of academic integrity, tolerance and non-discrimination were recorded during the analysed period".

(2) Expert judgement/indicator analysis

Policies to ensure academic integrity are well defined and the processes put in place for enforcing the codes of ethics are transparent.

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
There is an established methodology (KVK Appeals and complaints procedure), which starts in trying to sort out the doubts of their assessment with the teacher orally. If the student does not agree with the answer, he can write a request according to Appeals Procedure to the Dean no later than five calendar days from the date of publication of the exam assessment or after the Bachelor thesis defence.

According to the SER there have not been complaints in the period under assessment.

(2) Expert judgement/indicator analysis
KVK properly provides for the submission of appeals and complaints regarding the study process and the process is well defined in the study regulations.

Recommendations for this evaluation area:
9. Be more active with measures to reduce student dropout rate.

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
There are a total of 14 lecturers teaching subjects in this field during the years 2019-2020, of whom there are 7 (50 percent) of lecturers, who have been working for three years according to at least a part-time workload.

It is stated in the SER, 21,4% of lecturers who teach the main Mechanical Engineering subjects have a doctoral degree. Lecturers have strong practical experience (i.e. in 2019-2020 lecturers working for three years and at least part-time lecturers 80%, associate professors 20%). Nevertheless, most of them have some level of practical work and pedagogical experience. The ratio of the number of lecturers versus the number of students in the study programme is 12,46 (2017 – 12,13, 2018 – 12,41, 2019 – 12,85), being always less than the value required (20). Their age distribution shows that a large proportion belongs to the older age groups (48.9) with extensive experience but there is a policy to attract younger ones from qualified experts from industry. There is collaboration with Klaipeda University, Vytautas Magnus University, Kaunas University of Technology and social partner companies and some sessions are given by invited lecturers. There is also a good balance between men and women.

According to SER, teachers who teach Erasmus Students have B2 level (these represent 50% of the teaching staff).

SER (The lowest level of English language proficiency for teachers teaching to foreign students is B2. As the number of students coming under the Erasmus+ program increases, it is increasingly necessary to teach in a foreign language, and teachers are constantly improving in this area.).

According to the SER, the teaching staff of the ME study programme meets the requirements of the pedagogical and scientific degree specified in the Law on Science and Studies of the Republic of Lithuania and the General Requirements for the Execution of Studies. Almost 30 percent of the subjects of the study field are taught by scientists, more than half of the lecturers of the study programme have at least three years of practical work experience in the field of the taught subject.

(2) Expert judgement/indicator analysis

There is sufficient number of well qualified and experienced lecturers who are also involved in scientific research to deliver the study programme. They are capable of ensuring the quality of the programme and achieve the learning outcomes. They should improve English communicative skills for all staff even those who are teaching only nationals.

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

(1) Factual situation

The teachers are encouraged to enrol in mobility programmes for teaching and training. 59 cooperation agreements with foreign higher education institutions are signed for the ME study field.

KVK organizes two international weeks per year, to discuss possible exchanges and coordinate the mobility (2019 116 employees visited KVK).

The college has established measures for promotion of mobility that besides maintaining the salary while abroad and the position when coming back, a variable salary is appointed.

According to the SER Tables 5.1 3, 2 and 4 teachers left and 1, 4, 1 arrived during years 2017, 2018 and 2019.

(2) Expert judgement/indicator analysis

Opportunities exist for teaching staff to participate in academic mobility programmes and the college actively promotes the exchange. However, there is room for improvement since very few teaching staff has taken this chance during the evaluation period.

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

(1) Factual situation

KVK has established an in-service training for teachers. The in-service training plan is prepared every academic year by the Department based on the data of students' satisfaction and after execution it is discussed with the head of department during the next annual interview.

The teachers are given the opportunity to study doctoral or master studies, do internship in Lithuanian or international research or training institutions, while maintaining their salaries or establishing a flexible schedule.

(2) Expert judgement/indicator analysis

Opportunities are provided for teaching staff to attend professional development courses to improve their competences.

Recommendations for this evaluation area:

9. *The level of international mobility of lecturers (in-coming and out-going) should be further improved.*

10. *There is a clear promotion for self-improvement from the College administration. However, not all of the academic staff is taking advantage of it. Consider developing programmes to increase the time for professional training: new technologies (software in design and modelling) and English.*
11. *Increase the offer of subjects in English, this would increase the possibilities for national students to feel more confident on foreign languages and increase the offer for foreigners.*

3.6. LEARNING FACILITIES AND RESOURCES

Study field learning facilities and resources shall 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 lecture theatres and rooms are adequately equipped for lecture delivery and with a variety of capacities to accommodate the number of students in each study subject. The laboratories are well equipped for the study of Mechanical Engineering subjects. The capacities of the laboratories are enough for the small numbers of students in the classes.

Besides, KVK has signed bilateral agreements in order to use some equipment for external practices such as: with the Engineering Industry Sector Center of Klaipeda Shipbuilding and Repairing School (Laboratory works of materials processing processes with CNC machines), Laboratory of Mechanical and Marine Engineering of Klaipeda University (Laboratory of Materials Resistance).

The practice is carried out in companies whose activities are in line with the goals, results, and topics of the ME study programme.

The KVK libraries are well stocked with textbooks as well as databases of various branches of science and scientific journals and bibliographic databases (Springer eBooks Collections (Engineering); ScienceDirect; SAGE IMechE Journal Collection, etc.).

The college introduced EZproxy to allow students and employees to have access to the content of subscribed electronic resources from both personal and KVK computers. According to the students meeting they have access from home to electronic resources.

The Lithuanian Energy Support Fund (2018) financed the acquisition of equipment for the Efficient Electricity Usage Efficiency Laboratory (EUR 13930). The Legrand concern supported the installation of the Electrical Equipment Installation Laboratory, in 2019. The Laboratory for Energy Efficiency was supplemented with KVK funds by acquiring KNX smart home control stands, and the Laboratory of Mechatronics and Autotronics was renewed with new controllers. The project No. 09.1.1-CPVA-V-720-04-0001 Modernization of technology and biomedical sciences infrastructure to meet the needs of the region of Western Lithuania, during which the Technology Faculty (TF) building will be repaired, and a Laboratory of Low-energy Smart Buildings has been set up.

The Annex 3 of the SER shows the variety of laboratory equipment available for the study of Mechanical Engineering.

According to the SER, in 2020, there were 14 persons who studied in KVK and declared 45 percent or lower working capacity. There are no such persons in the ME study programme. However, KVK environment is adapted for students with special needs, in ways, such as:

driveways, lifts, toilet facilities, special computerized workplace for visually impaired students (enlarges the image, transmits text with sound), keyboards adapted for the visually impaired, alternative computer mice (for students with motor disabilities), ergonomic chair, equipped with space for work with a stationary image magnifier. During the analyzed period, lecturers learned how to adapt the study process to students with special needs – they have participated in the training of higher education staff, implementing the project "Increasing the Accessibility of Studies".

(2) Expert judgement/indicator analysis
The physical infrastructure available for the study of Mechanical Engineering consists of modern laboratories appropriate and adequate for the field of study. Grants obtained by KVK seem to have been spent wisely to provide modern facilities to enhance the student's study experience and to develop competence. The study process is well-adapted for students with special needs.

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

(1) Factual situation
There is a defined procedure to define the needs of the teachers each year. The procedure starts with the teacher, who presents the needs to the Department, which defines the expenditure plan of the whole study programme. This is then discussed at Faculty level and finally at KVK level. Financial resources are allocated to the faculty from the KVK budget every year to provide material resources for the Mechanical Engineering field's studies.

(2) Expert judgement/indicator analysis
There is a defined annual budget devoted to consumables and small renovations.

Recommendations for this evaluation area: none.

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 college system for internal assurance of the quality is based on LST EN ISO 9001: 2015 management system standard. The KVK Quality Center collects targeted data following the quality management system (QMS), analyzes feedback information obtained from surveys (i.e. students, graduates satisfaction with the quality of studies, employers opinions on KVK graduates' readiness for work, KVK employees job satisfaction surveys, etc.), by implementing external and internal audits (twice a year).

The head of the Department and the head of the SPC twice per year monitor: the process measurement indicators and level of goal implementation, characteristics of learning outcomes are measured.

An internal non-conformity has been identified in the drop-out rate, and a plan for 2020 has been established to provide individualized support for first-year students. General satisfaction has increased in the surveys from 77% in 2017 to 89% in 2019.

There are a number of levels of decision-making; The major responsibility for quality of the study programme is assumed by the head and members of the SPC of the study programme, the head of the Department is responsible for the applied research activities, analysis of study quality and preparation of improvement plan, measure of study programme outcomes and distribution of teachers' workload. The responsibilities for the implementation and monitoring the quality of the study programme are clearly allocated.

(2) Expert judgement/indicator analysis
There is a well-defined and implemented internal quality assurance system of the Mechanical Engineering field studies.

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

(1) Factual situation
The college collects the opinions and assessment from students, lecturers, graduates and employers. Besides, employers and alumni are invited to round table meetings, seminars and invited lectures.

During such activities, topics for Bachelor thesis are collected as well as needs of future graduates.

Social Stakeholders are included in the SPC of Mechanical Engineering study field.

(2) Expert judgement/indicator analysis
Good use of stakeholder's knowledge is made to improve the study programme.

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

(1) Factual situation
Various methods are used for the collection of information on studies e.g. questionnaires completed by students, surveys of graduates and employers, participation of employers in final thesis defence etc. The collected data is then analysed to determine improvements which are needed. Teachers submit improved study programme for evaluation and approval by SPC and the head of the Department, who then submit their suggestions. After that the Dean and his Deputy for Studies Science make the decisions.

(2) Expert judgement/indicator analysis
The system put in place is good. However, review team didn't find where the information is publicised in order to be used for future students.

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
Students are represented in the SPC of Mechanical Engineering field study programme. According to the interviews, even though the students should volunteer to be part of the SPC, if there were no volunteer one student was selected by the SPC Chairman. They provide suggestions for improvements in the study programme quality in terms of study content to meet job market needs and teaching methods.

(2) Expert judgement/indicator analysis

Students' representation on decision making bodies is good practice. However, student representatives should be elected by students.

Recommendations for this evaluation area:

12. *Publish the results of the quality management surveys, so future students can benefit from this information.*
13. *The information on the KVK web-site is focused to studies that are offered in English limited and information about the ME Study program should be added. It should be revised extensively.*

IV. EXAMPLES OF EXCELLENCE

Some very interesting interdisciplinary student projects are carried out at the College. For instance, the participation in the National Mechatronics competition or the International competition Best Materials Processing Engineer, which involved students from Latvia and Lithuania. They are extremely beneficial for the ME study programme students, as they provide a frame for practical application of the knowledge acquired and some hands-on experience. Moreover, cooperation with students from other study fields represents the additional dimension, which is beneficial to all the students participating.

V. RECOMMENDATIONS*

1. In order to present a more coherent and consistent information, it is recommended to unify the presentation of LO in the SER, study descriptions provided and website. For instance, subject Computer production design included in the Study descriptions is not in the SER. Verify that the subjects computer–aided Manufacturing Design 1 and 2 have activities to contribute to LO 6.1, which is "Is able to make engineering decisions responsibly, creatively, independently and in a team, taking into account their impact on society and the environment in accordance with the norms of professional ethics and engineering activities, while informing the engineering community and the general public".
2. The study plan is traditional and there is room to introduce more conventional and new technologies, such as combustion engines, smart industry (Industry 4.0), additive manufacturing and new programming languages such as python.
3. The measure of the quality system to ensure the quality and quantity of applied research are well chosen and the values follow a good trend, however it is important to focus on international level activities.
4. Increase the volume and quality of publications resulting from scientific research projects in particular at international level.
5. Increase the activities to involve students in research activities.
6. Increase the efforts to promote the study programme among highly talented students from both genders who can later meet the minimum requirements.
7. Increase efforts to promote international mobility of students in-coming and out-going.
8. Improve the look and the content of the college website, especially in the English version: include all the information of the description of all the subjects, LOs, assessment methods and so on.
9. Be more active with measures to reduce student dropout rate.
10. The level of international mobility of lecturers (in-coming and out-going) should be further improved.
11. There is a clear promotion for self-improvement from the College administration. However, not all of the academic staff is taking advantage of it. Consider developing programmes to increase the time for professional training: new technologies (software in design and modelling) and English.
12. Increase the offer of subjects in English, this would increase the possibilities for national students to feel more confident on foreign languages and increase the offer for foreigners.
13. Publish the results of the quality management surveys, so future students can benefit from this information.
14. The information on the KVK web-site is focused to studies that are offered in English and information about the ME study programme should be added.

*If the study field is going to be given negative evaluation (non-accreditation) instead of RECOMMENDATIONS main **arguments for negative evaluation** (non-accreditation) must be provided together with a **list of "must do" actions** in order to assure that students admitted before study field's non-accreditation will gain knowledge and skills at least on minimum level.

VI. SUMMARY

The following is a summary of the findings of the review team based on provided Self-Evaluation Report and online interviews with Klaipeda State College administration (senior management and faculty administration staff), staff responsible for the preparation of the SER, teaching staff and stakeholders (students, alumni, employers, social partners).

The review team gives a positive evaluation to the implementation of the study field Mechanical Engineering and first cycle at Klaipeda State College (hereafter – KVK) with all areas of evaluation assessed as "good" or "very good".

The following key strengths are noted by the review team during the evaluation of the Mechanical Engineering field studies:

- The level of commitment by College director, administration staff and lecturers to the institution and Mechanical Engineering field studies is high and emphasizes the motivation for further growth.
- The management structure is clear, with all the responsibilities well defined.
- There is a correspondence between the Mechanical Engineering field studies and the needs of the local industry.
- Lecturers have a proper education, competence and motivation to successfully deliver the Mechanical Engineering field studies.
- Students' voices are heard through discussions, feedback and surveys and have a positive effect on the Mechanical Engineering field studies.
- Students and graduates are happy about their studies and are motivated.

The review team would like to highlight the following examples of good practice of the Mechanical Engineering field studies:

- Quite some interesting participation to National Competitions in the Mechanical Engineering Study field are in place and give the students high value hand-on experience.

There are several areas for possible development of the Mechanical Engineering field studies, none of which are critical enough for lower grade of evaluation:

- The structure of the study programme *Mechanical Engineering* is constantly adjusted to meet latest developments. However, it would be suggested to include some relevant topics that are currently not considered such as combustion engines, new programming languages such as python and new technologies such as additive manufacturing or industry 4.0.
- Learning outcomes (hereafter – LO) are well structured, however the information about the study programme *Mechanical Engineering* goals and LO needs to be unified in both Lithuanian and English websites of the College.
- The level of international mobility of lecturers and students is promoted; however, there is still space for improvement.

- More attention should be paid to implement activities to attract talented students from both genders that can fulfil the admission requirements later on. The promotion of the Mechanical Engineering field studies should be further improved among national and international prospective students.
- On the other hand, more attention should be paid to the students' dropout rate and implement actions to decrease it.

Expert panel signatures:

1. **Prof. dr. Oluremi Ayotunde Olatunbosun (team leader)** *academic,*
2. **Prof. dr. Jasmina Casals-Terré,** *academic,*
3. **Prof. dr. Bojan Dolšak,** *academic,*
4. **Dr. Vaidas Liesionis,** *representative of social partners'*
5. **Ms. Erika Tichanovič**, *students' representative.*