



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Kauno technologijos universiteto
***EKSPORTO INŽINERIJOS PROGRAMOS (612H77003,
61209T103)***
VERTINIMO IŠVADOS

**EVALUATION REPORT
OF *EXPORT ENGINEERING* (612H77003, 61209T103)
STUDY PROGRAMME**

At Kaunas University of Technology

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Ekporto inžinerija</i>
Valstybinis kodas	612H77003, 61209T103
Studijų sritis	technologijos mokslai
Studijų kryptis	gamybos inžinerija
Studijų programos rūšis	universitetinės studijos
Studijų pakopa	pirmoji pakopa
Studijų forma (trukmė metais)	dieninės studijos (4), iššęstinės studijos (6)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	pramonės inžinerijos bakalauras
Studijų programos įregistravimo data	1997 gegužės 19 d.

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Export Engineering</i>
State code	612H77003, 61209T103
Study area	Technological Sciences
Study field	Production and Manufacturing Engineering
Kind of the study programme	university studies
Cycle of studies	first
Study mode (length in years)	full time (4), part-time (6)
Scope of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Industrial Engineering
Date of registration of the study programme	19 of May 1997

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The Centre for Quality Assessment in Higher Education

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I. INTRODUCTION

This report synthesizes the specific observations and recommendations for the EE programme at Kaunas University of Technology. The reader is also kindly asked to consult the global report – the summary of several engineering programmes, evaluated in March, 2012, to get acquainted with the global remarks and recommendations addressed to all curricula evaluated during the visit.

This document is based on the content of the self-assessment report prepared by the direction of the bachelor programme in Export Engineering, and on the observations, respectively the discussions carried out at Kaunas Technological University on March 20, 2012. The expert team would like to thank all participants for the constructive and fruitful exchanges, which took place in an atmosphere of cordiality and openness. The committee was also favourably impressed by the degree of preparation, the careful redaction of the self-assessment documents, the level of competences, respectively the motivation of the teaching staff and of the programme management staff. The committee met also motivated, enthusiastic and dynamic students, as well as supportive alumni and employers, convinced by the curriculum adequacy to employment market needs.

Since Quality Systems, Quality Assurance and Quality Control are closely coupled to processes of continuous improvement and to the PDCA (Plan-Do Check-Act) cycle (or Deming wheel of continuous improvement), *this report contains many critical observations*. Lithuanian accreditation office and Kaunas University of Technology authorities should not consider them as critics aiming to depreciate the content, the status of the bachelor in Export Engineering and the performance of the faculty and administrative staff, but exclusively to contribute to level up its degree of excellence (content and positioning).

The audit committee delivers its evaluation, knowing however that large parts of the academic documentation and data are written in Lithuanian; unfortunately, most of the committee members have no sound understanding of it. On the other hand, they found that the self-assessment document was easily understandable only if the reader was accustomed to the context, official guidelines and academic practice of Lithuanian higher education area. The committee would recommend preparing in the future a document fully adapted to the gross ignorance of foreign experts (-). Last, if the self-assessment document contains data and tables, they are often not commented or discussed in detail. **It is our understanding that such report should contain more self-reflective and critical observations**; a SWOT analysis at the end of each rubric could also have been precious for the expert team. Curiously enough, the redactors, all active in a School of Engineering, didn't include any graphics in their document, which could have facilitated the reading, developed a synthetic view and rendered it more enjoyable.

Traceability is an important factor: a brief summary of the content of the previous audit report, the main recommendations and especially their follow up carried out by direction of the programme was found in the self-assessment report documents (SER) sent to the auditors (item 10); it would have nevertheless given important clues to the audit committee to round up the present evaluation and assess the continuous quality improvement process of the programme if more details had been included.

Last, the official document *Methodology for evaluation of higher education study programmes* provides numerous items to evaluate during a programme review. (Chapter II. Analysis of the programme). It is our understanding that the self-assessment document provided by the direction of the programme, didn't address all these items.

II. PROGRAMME ANALYSIS

1. *Programme aims and learning outcomes*

Aims of the programme

Kaunas University of Technology BA programme in Export engineering is an interesting, future oriented and stimulating programme, a courageous initiative, matching the expectations of Lithuanian stakeholders of the economy, which seems rather unique in Europa, since:

- No *top notch* TU (Technological Universities) have settled such a higher education track.
- The self-assessment report does not mention any foreign comparable programme; therefore, benchmarking opportunities, which are quite pertinent for programmes improvements, cannot be used here.
- Internet investigations with usual research tools such as Google didn't provide any sound information on others and possible competitive programmes (bachelor and master), except one curriculum mentioned at times in a Danish institution.

The technological content of the curriculum puts the main accent on mechanical engineering (probably because of the partnerships with LIMBRA) and introduces some business courses; however, one may imagine that others engineering curricula could be also designed accordingly. Actually, EE has an outstanding characteristic: its teaching in several foreign languages (English for instance), although German and French courses have been recently postponed.

According to our discussions, the branding of the name EE seems to be well accepted in Lithuania; however, the expert team believes that it has no appeal on the international academic scene and this observation was confirmed by an outreach student of Pakistan. This is regrettable, since this curriculum could be communicated internationally by Kaunas University of Technology, which aims to be visible on the international academic scene. **The committee recommends therefore using another title for this bachelor programme.**

This multilingual curriculum is a remarkable achievement and the Senior Management of Kaunas University could consider this bachelor as a pilot programme and settles such an education track for others engineering disciplines. In some European TU, the business competences for engineers are often provided at the Master level, so that the students receive first a basic engineering education in various disciplines (Bachelor in I&C; Electricity, Life Sciences, etc.), before entering a Management of Technology (and business oriented) curriculum. However, if Kaunas University were willing to choose in the future this approach, the programme should be led by a transverse leading organism, or even by a specific College of Management and Business.

The aims of the programmes are defined in item 19 of the self-assessment report (SER). The content of the LO, expected skills and competences are delineated in short, in a rather generic form, but are clear defined and easily accessible. The economic (public and private) institutions and companies which will employ the alumni are exposed in item 21, but a more accurate professional profile seems to be eluded; there is also no clear-cut information in the self-assessment report about the alumni professional insertion and employment (for instance, results of a survey), so that an external observer cannot evaluate if the programme matches the claimed ambitions of the programme director. However, discussions with alumni and employers have provided further evidences that the programme aims and learning outcomes are based on the academic and/or professional requirements, public needs and the needs of the labour market;

Programme and Teachings Learning Outcomes

By comparison with the present situation in many others European TU, **an initiative of the Programme director has to be underlined and praised; the faculty has done a pioneer work:**

- by defining generic LO;
- by attributing Programmes LO to every course;
- by writing LO for every course;
- by indicating the chain of pre requisites.

Therefore, the programme aims and learning outcomes are consistent with the type and level of studies, the level of qualifications offered; the name of the programme, its learning outcomes, content and the qualifications offered are compatible with each other.

It seems that the faculty had to comply strictly with the generic key learning outcomes in the document General Regulations for Technological Science Studies, approved by the Ministry of Education and Science 29 of April 2005, order No. 734, items 13-15. By comparison, the US leader in engineering accreditation, ABET (Accrediting Board of Engineering and Technology), gives more latitude to the institutions to settle LO specific to their curricula, even if these LO have to be in agreement with more generic and official ABET formulations. An adjustment is here required,

Further improvements are needed:

- For numerous courses, the list of the outcomes is (too) long and some synthetic view is lacking (for instance the factsheet “Physics II”); regrouping the outcomes in a few items would facilitate a critical analysis, mostly performed during courses or programme reviews. The redaction style could be also more standardized (see for instance the factsheet “Foreign Language Usage for Specific Purposes”). This could be obtained if the assistant of the director of the programme would review the draft prepared by the faculty members and teachers and add a final “pedagogic touch”.
- If the LO programmes matched by the course are mentioned in the *ad-hoc* factsheet, the relation(s) between these LO and the courses LO are often no obvious; to put the related programmes LO into bracket at the end of the LO programme formulation would be an asset.
- A careful reading of the courses LO shows that the six levels of the Bloom hierarchy were used to write them. Main LO listed refer to the Level 1 (Knowledge), 2 (Comprehension), 3 (Application), but less often to 4 (Analyse) and more rarely to 5 (synthesis) and 6 (evaluation). For a professional (and autonomous) engineering practice, more outcomes of the 5 and 6 level should be integrated, especially regarding the competences linked directly to the aims of the programme.
- *Plan a last step*: the director of the programme has to define the methodology to assess the achievements of the programme LO at the student level and implement it; the diploma project and the practical internships provide often a grading of the overall achievement of the student.
- Students claimed that not all of the learning outcomes presented in the SMC’s are clear to them; **the committee recommends to optimize the LO in collaboration with the students.**

2. Curriculum design

As delineated under item 31 and 32, the curriculum design meets the legal requirements (according to the official guideline applicable for all running study programmes since July 2010).

Duration of the studies is 4 years for the full time study mode, and 6 years for part time study mode, the amount of credits – 240 (till the 1st of September, 2011 the amount of credits was 160). The programme consists of three objective parts: general university studies (18 credits), course units of study field (138 credits) and special courses of study field (84 credits). 7% of the programme amount (not less than 7 % is required) is devoted to the general university studies (humanities and communication courses); 42 credits are devoted to the courses of mathematics, physics and chemistry (not less than 42 credits is required), core courses of engineering – 42 credits (not less than 30 credits is required), courses of study field – 36 credits (not less than 36 credits is required), courses of social sciences – 21 credit (not less than 12 credits is required); special courses of study field – 30% of the study programme volume (not less than 30 credits is required); to practical training – 15 credits (not less than 15 credits is required), to preparation and defence of the final degree project 12 credits (12 – 15 credits is required), for elective courses– 12 credits (not less than 12 credits is required). The part time studies are similar in structure: they have the same objective parts, the same amount of credits.

The self-assessment document mentions that the curriculum have been recently modified in order to comply with a total of 240 ECTS. It does unfortunately not indicate how this adjustment was done and what were the disciplines added? Did this adjustment influence the LO of the programme for instance? Were the disciplines added with the advices of ad hoc committee of external stakeholders? This information was not found in the documents addressed to the committee,

Programme Design

The programme design matches the programmes LO, since the links between the Programmes LO and teaching LO have been firmly established. This is an asset for the coherency of the programme design.

The credits number dedicated to provide an interdisciplinary background to the Export engineer and to give him the *ad-hoc* managerial, business and international competences is, according to SER, **20 ECTS**. This corresponds in many TU universities to a minor. Many UE TU distinguish two orientations in the domain of Management of Technology: supply chain and innovation. These two fields correspond to the activities of an engineer in the private economy. **Innovation management, product development management, start-ups and spin-off creation these themes could be developed further within the EE curriculum.** Last, the possibility to choose both curricula in Export Engineering and in Economy brings a more distinct interdisciplinary education, will be welcome by the employers and may successfully leapfrog the managerial Business Schools:

During the visit, the experts could verify that:

- study subjects and/or modules are spread evenly, their themes are not repetitive;
- the content of the subjects and/or modules is consistent with the type and level of the studies;
- the content and methods of the subjects/modules are appropriate for the achievement of the intended learning outcomes;
- the scope of the programme is sufficient to ensure learning outcomes;

However, some basic remarks and improvements proposals are listed below.

Diploma themes: The table (doc. 4.4) provided in the SER delineates the themes of 2010 year, a list of topics of final degree project. It covers a large area of mechanical engineering (manufacturing, quality, design, R&D), but few title displays an interdisciplinary/international flavour as delineated in the programme outcomes (especially the business and economic

aspects). To verify if the programmes LO are reached, themes in closer association with the interdisciplinary ambitions of the curriculum should be selected (there is for instance no business, economical or cost oriented theme listed). One could for instance imagine that, for such an interdisciplinary theme, a jury composed of one academic in mechanical engineering and one in business or economics could evaluate the adequacy of the student project to the programme LO. **The audit committee recommends therefore promoting further themes in closer relation with the international ambitions of the programme, or, for instance, hosted abroad, respectively in international or multinationals companies.**

Internships: Export engineer will not enter the employment market of national administration, academic teaching and research environment or higher college education, but mostly the private and less probably public economy. Therefore, the development of the skills related to professional practice is important. The factsheet T000B152 “professional practice” indicates an internship of 400 hours, about 8-10 weeks in a company (French School of Engineering for instance distinguish between “on the production line” internships and “professional” internships, for a total a months of min. 6). The aims of the internships delineated in the factsheet comply successfully with the profession of mechanical engineer, but the adequacy of the internships LO to the EE programme LO is not obvious. **The committee recommends therefore developing further internships in multinational companies or abroad.**

Last but not least, the item 18 of the SER asserts that the Export Engineering programme has a distinctive and unique feature, its organization in four foreign languages. This is definitely an asset for any engineer. However, most of the references books listed in the course factsheets are written in Lithuanian. This situation has two drawbacks:

- it is therefore difficult for an external observer to evaluate if the international ambitions of the programme are reached. Meeting with the student confirmed however that the goals were reached.
- The teaching staff has to devote a precious time to write textbooks in English and to update them regularly.

Courses content and pedagogical aspects

The factsheets corresponding to the courses described in table 2.3 attest of the various pedagogical methods employed (front teaching, exercises, seminars, laboratories practice work and even distance learning). There is also a good balance between the basic sciences education and the engineering content; important disciplines such as security at work, design, quality assurance are also included, giving a good preparation to an engineer career. This is an asset of the programme. **Further remarks and recommendations below:**

- a) The curriculum includes courses outside the “hard core” of engineering such as philosophy, aesthetical and juridical aspects. The courses cover a large scope of the discipline. Since, students in technical sciences do not study Humanities with high motivation, **it might be useful to put an accent on the relations that the discipline has with the engineering profession:** for instance; industrial design for aesthetical aspects, engineering deontology and deontological codes for philosophy, licencing, patenting, spinoff and start up creation for the teaching of the juridical aspects).
- b) During our meeting with the students, it was stated that the interfaces between the theoretical content of the courses in Maths, Physics, Chemistry and possible engineering applications challenges were lacking: the students may not understand why these sciences are important for engineering applications. This situation is often observed in the engineering curricula and ensues of a lack of communication between the corresponding faculty members and the direction of programme. **This**

communication should be enhanced and examples of (mechanical) engineering disseminated in the various basic courses.

- c) Students and employers asserted that the times devoted for the diploma project was too limited. **Front teaching courses during this final assignment should be reduced.**
- d) Students asked for a less theoretical content of the curriculum and an accentuation on the professional aspects (projects, company visits, etc.). **The committee recommends checking if the contacts between the faculty members and the economy have to be strengthened further.**
- e) **The scope of some technical courses could be enlarged: for instance and the title reformulated:** for instance, “logistics and transportation systems” instead of “transportation systems” and “Quality management and Management Systems” instead of “Quality Assurance” (most useful for Export engineers who have to cope with logistical tasks and ISO management systems requirements).
- f) Cardinal challenges of the XXIth century are sustainable development and the related corporate responsibility; they do not seem to be underlined in the curriculum and do not appear explicitly in the themes of the final project. **This should be corrected.**
- g) Mechanical engineering fields, such as energy and fluid mechanics could be further developed in the curriculum. Energy is also a major challenge of the XXIth century; this domain captivates also prospective students in engineering. **Further options in energy and fluid mechanics could be introduced.**
- h) The factsheets lists reference books for each discipline, mentioning also the number of books available to students. Non Lithuanian books are in a very limited amount, when they are listed. If the aim is to stimulate the student to use reference books and to promote their personal work, **it might be appropriate to have a limited “teaching” collection of scientific and technical handbooks in English (but a fair number of them) to give to students the opportunity to consult them, especially if the whole curriculum is in English.**

Last, the committee confirms that the present programme content reflects achievements in science, art and technologies matching successfully the expectation of the employment market. However, it seems that multinational and High-tech companies may still prefer alumni with master degrees. Due to its outstanding success and growth, the qualifications expectations of the Lithuanian economy may increase: **the committee recommends therefore that the director of the programme carries out a benchmarking of the Kaunas EE curriculum with the content of mechanical engineering masters delivered by the best European TU (for instance, TU München, DTU, ETH, Imperial College, Chalmers, Lund University, etc.).**

3. Teaching staff

Please refer first to the overall report where some important considerations regarding the faculty members are listed (teaching load, times devoted to research, travels, seminars, international congresses abroad and sabbatical leaves, as well as change management).

The staffing ensures the implementation of the learning outcomes of the programme and the number of the teaching staff is adequate to ensure learning outcomes. Without any doubt, the teaching staff provides high competences in the field of mechanical engineering. Lecturers and professors are regularly issuing scientific and technical publications or presenting communication at (mostly regional) congresses. Students and alumni asserted that the EE faculty members are dedicated to their teaching, motivated, easy going and show a remarkable international openness. Pedagogical courses, seminars given by international academic guests and events devoted to the LO implementation were also attended by the teaching staff.

The qualifications of the teaching staff are also adequate to ensure learning outcomes, but, **in the list of the teaching staff provided to the committee, two Ph.D. students were included; this status should be considered as temporary.** Ph.D. students should rather devote their teaching duties to assist a professor in the course preparation, correct exercises, organize and monitor student work in lab or, for advanced Ph.D. students, be in charge of diploma project.

A progressive internationalisation of the teaching staff would be welcome, as well as an increase of Ph.D. students, which are the “blood” of the academic research and bring further motivation among the bachelor (and master students). Ordinary professors show a fair level of seniority (age average of 58). Their future and progressive replacement has to be carefully planned.

There are no evidences in the self-assessment document about the satisfaction of the administrative and teaching staff, their worries and daily difficulties, administrative burdens, their perception of student life. Interviews confirmed that the teaching staff has adequate conditions for their professional activities. However, **an anonymous satisfaction survey aiming to find blind spots of frustration and difficulties should be steadily performed** (for instance on a 5-6 years basis) at the School or University level and would contribute efficiently to provide an enjoyable work atmosphere and improve efficiency.

4. Facilities and learning resources

The description of the facilities and learning resources listed in the self-assessment report addresses mainly the documents and learning supports, that the experts could consult and found adapted to the curriculum. During the visit, classrooms, individual workplaces, printing and individual informatics facilities, library resources (textbooks, books, periodical publications, databases) were found adequate and easily accessible. This point was also acknowledged by the students. During the visits of the labs dedicated to the student, the committee observed that some of the equipment, although matching the present needs of the Lithuanian employment market, may become obsolete within the next decade. On the other hand, IT support was found critical according to a student's survey. **The committee recommends therefore that the teaching staff in charge of the labs and IT dedicated to EE students carry out a benchmarking with the corresponding facilities of the best European TU (for instance, TU München, DTU, ETH, Imperial College, Chalmers, Lund University, etc.).**

5. Study process and students' performance assessment

Student admission

Student admission is carried out on a competitive basis; this is an asset to get motivated and high potential students.

On the other hand, the data showed in Table 2.7 of the SER would worry any programme director of engineering programme, since the students enrolment has been divided by three since 2007. This would be considered as very critical by many European TU Senior Managements and could even lead to close down the curriculum. The self-assessment report acknowledges briefly the decline and attributes it possibly to a possible attraction to foreign TU, **but the precise causes of this decline (such as for instance a specific profile of students studying abroad and where), a list possible remedial measures, should be ascertained further and a programme of corrective actions implemented.** Some initiatives are indicated in item 85 of the SER (such as participating in LAMA BPO LAMA BPO Higher Education Fairs "Where to study" organized in Kaunas, in Baltic countries education exhibition "Education, Training, Career"). It also not only organizes open visiting days for the school graduates, etc, but there is no indication that these initiatives have had a successful impact.

Last but not least, the chapter dedicated to student admission and enrolment doesn't provide data on foreign and outreach students (except mobility students indicated in item 100 and table 2.12). It is however specified later on in the document that 20 students of Pakistan were admitted in 2010, but that only 11 were staying at the beginning of the second year. Were there others foreign and outreach student in the student population? How were these students recruited? What is the international recruitment policy of the University of Kaunas, respectively of the director of this programme? Does the University of Kaunas develop enough international academic intelligence to reduce this drop out and diversify the national origin of outreach and international students? **If no, the committee believes that this international academic intelligence should be developed further.**

Study Process and student assessment

Student process and assessment is adequate to the programme objectives. There seems an adequate communication to the students and the official guidelines are respected. The student (mainly freshmen) drop out is fully acceptable, taking place during the first year. The tutoring and mentoring initiatives of the University have brought visible improvements on the freshmen integration. **An alternative, used by others TU, is to attribute individually to each freshman a more advanced student (year 3 or 4); this possibility could also be considered.** Students indicated also that contacts with the teaching staff were easy, swift and their requests adequately met. *However, an Erasmus student stated that the distance between students and professors is longer at KTU than in visited foreign countries (to ascertain further)*

There are also many initiatives regarding horizontal mobility of students (Erasmus) and faculty members (LLE), showing evidence of the interest in European mobility (and internationality) of the participants of the programme. Actually, all the students during the meeting stated that they all took part in exchange programs. Students didn't get any academic debts after studying abroad what means that study recognition is properly organized. **In the future, faculty members may also consider student exchanges and Erasmus agreements with others renowned European TU such as DTU, Imperial College, TU München, ETH, Chalmers and Lund University, etc.**

The student assessment is described (but in the chapter student support..., items 111-113) and appears to include a large option of controls, which complies with the variety of the Programme LO. The communication regarding student assessment seems adequate. Students have also fair chances to pass an exam if they failed to pass it the first time. **However, this process has to be revised in a near future when setting the global frame of the Programme LO assessment.**

The items 106.7- 106.8 of the document *Methodology for evaluation of higher education* study programme ask for evidences of the alumni employment. There are unfortunately no related data in the self-assessment document. Steady surveys of the alumni integration into the work place and of their career evolution within the 5-6 years after the end of their studies would provide useful informations on the impact and adequacy of the programme. For instance, do "Export Engineers", benefiting according to the claims of the programme direction of a fair international educational support, occupy managerial posts in foreign countries, etc.? **Survey of alumni employment has to be implemented and performed, for instance on 5-6 year basis.**

Student Support

The self-assessment document indicates that communication to the students is a preoccupation of direction of the programme; indeed, the indications on the corresponding web page are fully adequate; the web page mentioning also the email of the responsible academic

person. Students are well informed about assessment criteria. They always get the feedback from the teachers during one week after exams. If there is some kind of disagreement about the grade they can ask another teacher to evaluate their work – teachers are very open-minded.

Teachers send to students the learning material. They also provide them the list of literature and tell where they can find the required information. Students can access the number of foreign databases using the University provided services. The internet access is available in dormitories as well.

Although the students would like to have more practice instead of theory, they are satisfied with their studies

The self-assessment document addresses also the situation of the scholar- and fellowships. The general policy is described briefly in item 115 but, since it refers to specific documents probably in Lithuanian, it is difficult to judge the adequacy and the effect of this policy, for instance on vertical mobility (according to the student, this impact is negligible). There are fair initiatives to reward successful students: **one alternative could be to organize special visits in top notch research and technological institutes for these gifted students, which could increase their motivation to enter a research and academic career. Another could be to integrate them early in a research team and deliver them an award for their research project.**

TU teaching and administrative staffs of others UE members observe that a minority of students display economical and psychological difficulties, stress and even depressive moods. Does Kaunas University offer any kind of social or psychological help, i.e. an anonymous help emergency line to prevent painful and dangerous incidents on the campus? **If no, such an initiative should be carefully considered.**

To define, implement study processes and assessment are complex tasks: the rating of their adequacy is delicate. **this level should be also evaluated by steady and anonymous satisfaction surveys addressed to all students, probably at the university level, for instance on a 5-6 year basis, since they are not mentioned in the document provided.** *The redactor of this report has often observed that “hierarchical” and “usual” academic canals of information do not reveal all key and annoying dysfunctions of academic processes.*

6. Programme management, Quality Assurance

The self-assessment document provides evidences of an effective programme management and describes the participations of various internal stakeholders. Hierarchical levels, and administrative responsibilities and tasks are delimited and an adequate organization is in place. The appointment and promotion of the teaching staff is monitored and defined: special commissions are assigned to this task. In this sense, the conditions for an effective management and monitoring of the programme are met.

Evaluation of the teachings

The evaluation of the teachings takes place regularly and the students are asked to participate to this grading. However, the evaluation of the teaching seems not efficient, since the students do not show a high motivation to fill the evaluation survey. Several reasons were evoked by the students:

- Filling the survey is tidy and time consuming (survey too detailed?).
- No feedback given to the students.
- No apparent relation between the results of the teaching evaluation and a possible improvement of the course

Consequently, the students prefer to contact directly the teacher: most of them found this approach more satisfying. **The teaching evaluation has therefore to be reviewed and updated.**

Last, it well known that some members of the teaching staff are reluctant to take into account the critical observations and recommendations included in the student evaluation. **Some further evidence have to be shown or investigated here such as:**

- Percentage of courses judged of low quality by the students.
- Decrease of this percentage over the past years.
- Pedagogical support provided to a member of the teaching staff if an improvement is needed.
- Basic pedagogical training or support for new members of the teaching staff.
- Pedagogical actions to improve a teaching performance which is recurrently under the standard. Is it successful?

Quality Assurance

It has to be underlined that an ambitious programme of Quality assurance is presently being implemented in Kaunas University. However, the self-assessment document lacks in evidences displaying the level of satisfaction of student, the areas where improvements are needed, and what remedial measures have been decided and implemented. The mechanisms taking into account the output of alumni, their satisfactions and modification proposals, the Voice of external stakeholders (for instance employers) are also just sketched in the document and the visit didn't provide any further evidence that formal processes of continuous improvements were in place, although it seemed obvious that numerous informal contacts and fruitful actions were carried out.

The minor self-reflective and critical remarks in the self-assessment document regarding the academic data provided indicate further that internal quality assurance measures could be improved. Furthermore, the SER mentions that the curriculum have been recently modified in order to comply with a total of 240 ECTS. It does unfortunately not indicate how this adjustment was done and what were the disciplines added? Did this adjustment influence the LO of the programme for instance? Were the disciplines added with the advices of ad hoc committee of external stakeholders? This information was not found in the documents addressed to the committee,

Therefore, the committee recommends that the direction of the EE programme implements more formal processes and steady reporting in the quality assurance of the curriculum.

III. RECOMMENDATIONS

- 3.1. *Consider to develop curricula similar to multilingual curriculum of Export Engineering programme for others engineering programmes' disciplines of Kaunas University of Technology.*
- 3.2 *Continue the implementation of the Learning Outcomes of the Export Engineering curriculum*
- 3.3 *Develop the internships and diploma projects abroad or within multinational companies in Lithuania.*
- 3.4. *Develop the interfaces between the mechanical engineering concepts and applications and the teaching of basic, respectively human and social sciences.*
- 3.5. *Develop the management of technology content of the curriculum (two parts: supply chain and innovation management)*

- 3.6 *Constitute a set of reference books in English complementing the Lithuanian textbooks.*
- 3.7 *Revise the teaching load of the faculty and improve their times devoted to research, travels, seminars, international congresses abroad and sabbatical leaves, as well as change management. Adjust the funding for these international tasks accordingly.*
- 3.8 *Implement further energy, fluid mechanics and sustainable development themes in Export Engineering curriculum.*
- 3.9 *Carry out benchmarking initiatives of the Export Engineering programme content, IT and student lab facilities with the mechanical engineering curricula of the best European Union Technological Universities.*
- 3.10 *Determine the precise causes of the student decline of enrolment and implement a strategy of promotion of the career of engineer (at the local and national level).*
- 3.11 *Develop further international academic intelligence to “fuel” the Export Engineering curriculum with adequate outreach students.*
- 3.12 *Implement student, staff and alumni anonymous satisfaction surveys on the most 5-6 year basis.*
- 3.13 *Revise, update and improve the evaluations of teachings.*
- 3.14 *Implement more formal processes and steady reporting in the Quality Assurance.*

IV SUMMARY and CONCLUSIONS

The SWOT analysis below provides a synthetic view:

Strengths:

- Internationality of the curriculum.
- Adequacy of the curriculum content to employment market expectations, noticeable alumni satisfaction.
- First step implementations of the Learning outcomes.
- Good education level in mechanical engineering, fair sensitization to the business aspects of the professional activity.
- Low level of unemployment of the alumni.
- Teaching staff competent, motivated, open-minded and dynamic.
- classrooms, individual workplaces, printing and individual information technologies facilities, library resources (textbooks, other books, periodicals, databases) were found to be adequate and easily accessible
- Enthusiast and entrepreneurial students.

Weaknesses

- Title of the programme with no international appeal.
- Student enrollment has fallen by one third
- Faculty members loaded with teaching duties; only a few times left to grasp the latest developments in mechanical engineering; restriction for the promotion of their international contacts and collaborations due to insufficient funding.
- Limited coordination between the teaching staff (mainly basic, respectively human and social sciences) and the director of the programme.
- Evaluation of the teachings not effective enough.
- Quality assurance processes and reporting with a significant informal content.
- Reference textbooks mostly in Lithuanian.

Programme has potential to the positive developments:

- Possibility to generalize the internationality of the *Export Engineering* programme to others engineering curricula.

- Good perspectives for the enrolment of outreach students if an efficient institutional communication and international academic intelligence is implemented.
- Good appeal of the programme to prospective Lithuanian students motivated by the internationality of the curricula.
- Fair chance to gain more Erasmus students of others European Union countries, due to the internationality of the curriculum.
- Ability to communicate the international profile to multinational companies established in Lithuania to strengthen contacts with the private sector.
- Development of strategic collaborations in teaching and research with others Lithuanian or European technological universities.

Several threats are seen in the current situation:

- Decline of the student's enrolment (quantitative and qualitative).
- Ageing of the faculty.
- Faculty members and teaching staff "drying out".
- Some IT support and student lab facilities are subcritical or soon outdated.

V. GENERAL ASSESSMENT

The *Export Engineering* study programme (state code – 612H77003, 61209T103) of Kaunas University of Technology is given a **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and student performance assessment	4
6.	Programme management	3
	Total:	19

*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 exceptionally good.

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