



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO
STUDIJŲ PROGRAMOS
MECHANIKOS INŽINERIJA (valstybinis kodas – 612H33001)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF MECHANICAL ENGINEERING (state code – 612H33001)
STUDY PROGRAMME
At VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

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Išvados parengtos anglų kalba
Report language - English

Vilnius
2015

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Mechanikos inžinerija</i>
Valstybinis kodas	612H30001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Mechanikos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	nuolatinės (4)
Studijų programos apimtis kreditais	240
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Mechanikos inžinerijos bakalauras
Studijų programos įregistravimo data	2002 m. birželio 14 d.

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Mechanical Engineering</i>
State code	612H30001
Study area	Technology Sciences
Study field	Mechanical Engineering
Type of the study programme	University studies
Study cycle	First cycle
Study mode (length in years)	Full-time (4), part-time (6)
Volume of the study programme in credits	240
Degree and (or) professional qualifications awarded	Bachelor in Mechanical Engineerring
Date of registration of the study programme	June 14, 2002

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I. INTRODUCTION

1.1. Background of the evaluation process

The evaluation of on-going study programmes is based on the **Methodology for evaluation of Higher Education study programmes**, approved by Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC).

The evaluation is intended to help higher education institutions to constantly improve their study programmes 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 programme SKVC takes a decision to accredit the study programme either for 6 years or for 3 years. If the programme evaluation is negative such a programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas are evaluated as “very good” (4 points) or “good” (3 points).

The programme is **accredited for 3 years** if none of the areas was evaluated as “unsatisfactory” (1 point) and at least one evaluation area was evaluated as “satisfactory” (2 points).

The programme **is not accredited** if at least one of evaluation areas was evaluated as “unsatisfactory” (1 point).

1.2. General

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

1.3. Background of the HEI/Faculty/Study field/ Additional information

The Vilnius Gediminas Technical University (VGTU) is a public higher education institution, offering a broad range of taught and research programmes at Bachelor, Masters and Doctoral levels. VGTU is structured as Faculties and Departments and delivers key technology and engineering programmes, including Mechanical Engineering. The University is supported by extensive laboratory facilities, e-learning and research activities. The Bachelor of Mechanical Engineering is a first cycle study programme containing a number of streams in energy, metrology, design, quality control and mechatronics. The main purpose of the programme is to prepare graduates to work in the expanding industries of Lithuania. It is a four year programme with 240 ECTS (60 per year) and there are opportunities for further studies to Master level. There is a high demand for the graduates of the mechanical engineering programme from local and national industries. Entry standards to the programme are based on grades from second level education however grades in mathematics and physics are considered in calculating entry scores.

Under Quality Assurance practices within the University, the programme undergoes regular modifications and improvements, based on feedback from the stakeholders (management, staff, students, alumni and social partners) and the programme was reviewed by an external visiting panel in 2012, where it received accreditation for 3 years (up to June 2015). Based on the findings from that review, a self-evaluation analysis was undertaken by the Department to review its practices and procedures and address any key recommendations in the report produced by the external panel. The self-assessment report produced from this provides a detailed and complete description of the operations, facilities, management, training and standards of the study programme in Mechanical Engineering.

The objective of this report is to present the evaluation of the *Mechanical Engineering* Bachelor programme. The evaluation was carried out on the 2nd of February 2015. The findings of this evaluation are intended to help VGTU, to improve its Bachelor study programme in *Mechanical Engineering* and to inform the public about the quality of this study.

1.4. The Review Team

The review team was assembled in accordance with the *Expert Selection Procedure*, approved by Order No 1-55 of 19 March 2007 of the Director of the Centre for Quality Assessment in

Higher Education, as amended on 11 November 2011. The Review Visit to HEI was conducted by the team on 2nd February, 2015.

1. Prof. dr. David Kennedy (team leader), Head of Mechanical Engineering Department, Dublin Institute of Technology, Ireland.
2. Dr. Rynno Lohmus, Head of the commission of Estonian Higher Education Quality Agency; Senior Researcher at Faculty of Science and Technology, Institute of Physics, University of Tartu, Estonia.
3. Prof dr. François Resch, Professor Emeritus, Institute of Engineering Sciences, University of Toulon, France.
4. Prof. dr. Jolanta Janutėnienė, Head of the Mechanical engineering Department, Faculty of Marine Engineering, Klaipėda University, Lithuania.
5. Dr. Vigantas Kumšlytis, Manager of materials engineering and technical analysis at Public Company “Orlen Lietuva”, Lithuania.
6. Mr. Mantas Kinderis, 3rd year student of *Car Electronics* study programme, Vilnius College of Technology and Design, Lithuania.

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

Study programme aims:

The four key aims of the programme in *Mechanical Engineering* are relevant for this type of programme, however they should be written more clearly. They should be written to reflect what a graduate is capable of doing/demonstrating on completion of the programme. The first aim is written to reflect what the teachers would provide the students. The second aim is a mixture of what the teacher can deliver to the students and what the student should be capable of doing. The third aim is vague in its current structure and should be re written. The fourth aim covers the key areas of expert knowledge, expertise, ethical and communication skills along with entrepreneurial skills, however it should be written more clearly. The ability to design, use scientific methods, evaluate, develop, care for the environment, understand business matters are appropriate. The ability to produce/manufacture and personal development are listed. Stronger emphasis on communication skills (written, verbal etc.), teamwork and ethical reasoning could be made.

Learning outcomes should clearly state what a graduate is capable of doing when they complete the programme, based on learning, assessment and proof of achievement from the assessments. Although the aims have captured the key requirements of a Mechanical Engineer, the Expert team would suggest that they be broken down into seven or eight key aims, covering specific milestones for clarity rather than combining aims.

The programmes are designed to meet the needs of the country, public and industry based on the information provided. Overall, the programme aims and learning outcomes are consistent with the type and level of studies and the level of qualifications offered. Within the study review material provided, a concise breakdown of subject areas versus competencies mapping was presented which shows the depth and breadth of meeting the programme outcomes.

2.2. Curriculum design

The curriculum design meets legal requirements and conforms to standard practice for a Bachelor award and the previous accreditation was granted up until end of June 2015, having previously been externally assessed in February 2102. The programme consists of 240 credits (60 per year), and offers a good a good balance of modules covering Maths & Science, Technology and Engineering, Languages, Management, Professional Practice and Project based

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activities. The programme contains a number of streams that the students can choose from including some recent additions to keep current with international practice:

- Environmental protection and energy accounting equipment;
- Machine quality control;
- Machine Design;
- Mechatronics;
- Alternative energy equipment.

These streams have a lot of commonality and only one or two modules are unique to each one.

Contents of the subjects seem appropriate for the award. The breakdown of learning outcomes for each subject are detailed but could be more specific in term of what a student should be capable of doing on completing that course/subject. The number of credits for each module varies between 3 and 8 and the project accounts for 18 credits. A standard number of credits for each module (e.g. 5 or multiples of 5) may be worth considering for future development and structure of the programme. Students have a broad choice of language modules to study from, are offered a strong “ladder of opportunity” to progress in their studies and can progress onto the higher degrees offered by the Institute. Some modules are delivered in English and this trend can be enhanced to make the programmes more internationally acceptable.

It is very positive to see courses on Technical Graphics, IT, and Management combined with the technical and engineering subjects.

Details were provided of how each subject is delivered and assessed and activities for the students during each semester are clearly developed. Assessment materials (Scripts, lab reports, project reports and some project hardware) showing the evidence of students meeting the programme outcomes was presented and viewed.

The total hours for the programmes are in the order of 6,400 with 40.1% of these been direct contact with students and they remainder consisting of Independent Learning. Distance learning is also available as a means of programme delivery. The duration of each semester varies, governed by classes, work placements and final year project. Delivery hours per week are in line with international norms.

Reference lists for syllabi should be updated and the use of modern textbooks encouraged. There is a very high interest in this programme from Second Level education in Lithuania and the

scope of the programme is sufficient to produce graduates capable of working in numerous industries. The Expert team were highly impressed with the feedback from the student and alumni group that they met and they expressed the view that they were satisfied with the programme in general and support from the staff. In order to maintain a high interest in the programme, the Department should consider bringing engineering subjects (Design, Manufacturing, Project based learning, Teamwork etc.) into the first year of the programme to make it more appealing to applicants.

In relation to the Thesis subjects (Thesis 1, 2, 3), the subject descriptors could be written more clearly. The project should form a key independent learning experience for the student and provide an opportunity for that person to excel as a graduate engineer.

In comparison to other higher education institutions, the programme contents reflect current practices. Examples include mathematics, mechanics, manufacturing technology, computing & IT, chemistry and physics. Students attend industry in the form of work experience and industrial guest speakers present at the university.

Based on the material provided, it is evident that programmes have been updated, modified and aligned to up to date practice in the industry. In support of this, the Department is guided and supported by an active alumni, a social partner group and programme management team.

2.3. Teaching staff

The academic staffs meet the legal requirements and the qualifications of staff are appropriate for the programmes been delivered. Teachers have produced study work books, are active researchers and engage with industry.

The balance of teaching staff, staff/student ratios, and number of support staff (Technical and administrative) appear to be appropriate. The number of students taking these programmes appears to be dropping over the last 4 years, giving a good staff to student ratio. However this is a worrying trend for the programmes and actions need to be implemented to address this (436 students in 2009/10 to 199 students in 2013/14).

There is a good level of staff development and opportunities for staff to engage in further studies/placements with other higher educational institutions and collaborations in industry and research to adequately support the programmes. Teaching staff for the *Mechanical Engineering* programmes include 15 Professors, 27 Associate Professors, 17 Lecturers and 4 Assistants. Some staff is completing Doctoral studies and up to date recording of Publications, Books, IP, Patents, exchange programmes and visits to International Conferences are maintained. This data should be supported by external income generated by each of the staff on research and industrial projects. It was evident that the students engaged very well with the teaching staff and were supported by the staff in their studies, access to facilities and project work. To complement this, staffs was enthusiastic about their work and in support of developing the programmes to meet industry needs.

2.4. Facilities and learning resources

Learning facilities appear to be adequate for the programme based on the subjects delivered. This became apparent during the tours and inspection of classrooms, lecture theatres, laboratory, IT facilities, library and workshops during the visit. Basic machine shops are in need of essential health and safety updating including safety signage, first aid kits, machine guards, floor coverings and markings. Equipment for metrology and basic mechanics need to be invested in by the University and Department. However there is an adequate supply of hands on workshops and laboratories to support the programmes and student body. The CNC laboratories, Robotics facilities, Rapid Prototyping, welding facilities and the student Creativity Centre and the Renewable/Sustainable Energy facilities are quite adequate for the programme, meet the needs of the practical aspects of the programme, facilitate good project work and facilitate collaborations with industry.

The reading room for the Engineering library and referencing facility is well laid out and accessible for students after lecture hours however it is noted that some of the textbooks in reference lists for subjects are old and should be brought up to date. There are facilities to support modern learning methods such as e-learning, on-line resources, group work, problem-based learning, project based learning and independent learning.

2.5. Study process and students' performance assessment

Admission standards to the BA in Mechanical Engineering are through the general admissions system in Lithuania and are appropriate for the programme. Maths and Physics are regarded as

key entry subjects for students and allowances for these are taken into account when deciding on the entry grades. There is a very high demand for the programme from secondary school. In line with European norms, there are two semesters per year. Students are assessed in examinations, course work, and project work and laboratory activities. Evidence of the assessment materials were presented for laboratory activities. A tour of the teaching and learning facilities was undertaken by the Expert team and they were found to be more than adequate to meet the needs of the programme.

Students have an appeal process whereby they can request clarity from lecturers on their marking schemes and actions can be taken from this to rectify any errors. Students also complete Quality Surveys and questionnaires at the end of the year to reflect on their study experiences. There now exists a distance learning option and it appears to be growing in popularity by students of the programme. In the Self-evaluation report presented by the Department, there is some contradictions in the Tables (page 26 of SER) presented, based on demand for the programme, students enrolled, and drop out numbers which needs to be rectified.

The division and target areas of learning allows for the creation of graduates with specialist skills and knowledge in the engineering disciplines specified. Students have a good choice of language modules along with “Politics” and “Philosophy” in year 1 which although they don’t necessarily enjoy, do realise the value of it later on in their studies and careers. It is evident that students have a ladder of opportunity to take higher degrees; avail of overseas studies and this is supported by the university through a basic scholarship scheme. Some non-national students have joined the programme and there are good opportunities for overseas programmes via the Erasmus and work placement schemes.

Results/performance of students seem normal. Based on the statistics presented, meetings with current students and alumni, graduates are gaining employment with suitable industries. There is clear evidence that students have the ability to take on further studies as demonstrated by those who go on to higher degrees, and this supports their ability to undertake life-long learning. The Review team were impressed by the breakdown in assessment methods and the weightings system used to grade students work. It would be a benefit to the Department and students if some of the more practical engineering modules were introduced in year 1 to give students a more productive experience and develop their project based and technical design interests and skills

earlier in the programme. This should help the students understand an earlier stage what a Mechanical Engineer does in the work place.

The Department should also deliver more modules and assessments through English to make the programme more accessible to international students and should promote and expand the number of Mechanical Engineering competitions for students to enhance their learning experience and develop their communication and team work skills. One such competition is the International Undergraduate Awards. It was also evident that students were highly motivated and positive about their studies and in some cases, felt that the learning environment could be more inspiring for them in terms of creativity and greater challenges to test their knowledge and skills. Based on the range of undergraduate final year thesis presented, the topics selected for the project work is at a suitable standard for a Bachelor award. The assessment of projects is conducted at a suitable standard and the social partners are involved in this process. The standard of the written reports is adequate, containing clear aims and objectives, analysis, modelling, adequate contents and detail, results, conclusions and references, supported by physical hardware.

2.6. Programme management

At university level, the programme is managed by a Study Committee whose role includes the approval, coordination, implementation, monitoring and inspection of new or improved study programmes and modules. At faculty, the Department is responsible for the management of the programme and this is achieved via the Study Programme Committee, normally chaired by the Head of Department and the committee made up of lecturers, stakeholders and student representatives. The Study Programme Committee manage the day to day running of the programme and engage with external bodies such as the Social partners, Alumni, accreditations and Quality Assurance issues. It is normal for students to participate on committees to provide feedback to staff on the quality of facilities, resources, teaching styles and scheduling and this should be encouraged more. Minutes of committee meetings should also be available for visiting Review teams.

All engaging meetings involving the Study Committee, Study Programme Committee, social partners and student representatives should take place annually to ensure actions are taken on surveys, feedback is provided and any deficiencies dealt with.

Management should ensure that all action items, arising from these meetings for improving the programme are recorded annually, and dealt with appropriately during the following year, and relevant feedback provided to the committees to ensure they were addressed.

Meetings with the alumni and social partners showed a strong support for the *Mechanical Engineering* programme and it was evident that such groups have a role to play in supporting the development of the programme and enriching the student experience via provision of equipment and materials, work placements and project assessments. The Department should make greater use of such an available resource. It is evident that based on previous evaluations and recommendations from Review teams that the university has outlined how issues raised will be addressed, thus leading to improvements in the programmes and learning experience for the students.

III. RECOMMENDATIONS

1. Some laboratories are in need of modernisation to reflect current industry practices. For example: Workshops, Machine shops, and Metrology equipment. Some laboratories are in a hazardous state in terms of health and safety equipment, safety guards, floor levelling, first aid boxes, and safety signage. The Department needs to take action on this to reduce the risks of accidents and prevent such happenings.
2. There appears to be a very high teaching demand on lecturers (800 hours typical) per year which makes it very difficult for staff to creatively engage with research, industry, programme development and personal development. Encourage further staff participation in European funding schemes and EU COST projects. The Department needs to provide flexibility in this so that staff can engage in research, industry collaborations and overseas visits to enhance the profile of the Department, faculty and university.
3. There is an opportunity to increase the delivery of modules via English language. Based on this, there is a need to support staff training in English to enhance this development. Based on student feedback, there is a need to improve and expand this activity. The Department should also implement plans to encourage students to write their main project reports in English language.
4. It is recommended to the Department to change the delivery structure of the Bachelor programme to bring more engineering practice into early years of the programme e.g. design practice, machining, welding, basic projects and teamwork.
5. Improve links and partnerships with alumni and social partners to enhance project work, research, industrial visits, research, programme developments, new modules and provision of equipment and future employment of graduates.
6. The Department should consider reducing the number of streams on offer as some are very similar. This would free up resources to undertake other activities without compromising the needs of industry. Similarly, the Department should review the credits offered per module and try balance the number of credits per module across the programme. This may encourage a higher Erasmus exchange rate among students.

IV. EXAMPLES OF EXCELLENCE (GOOD PRACTICE)

Some of the key strengths of the *Mechanical Engineering* programme are as follows:

1. Learning and offering of some modules through the English language. This practice should be expanded and developed in the technical areas also.
2. There is a high level of team work among students.
3. Graduate skills, competencies and capabilities are highly appropriate to the needs of industry. It is evident that career opportunities in engineering are high for all graduate students and this is an important marketing opportunity for the Department.
4. There is a high level of student engagement with industry projects and work experience.
5. Some workshops are of a high standard including CNC, Welding, Materials analysis and Testing, Robotics, Energy Lab, Student Multi task lab and development of R-P lab. This is a very important part of becoming an engineer with high practical skills and should be supported further via the social partners and alumni.
6. There is a good demand for the programme from non-national students and the provided the Department exploit and develop this opportunity.
7. Students are highly motivated and positive about their learning experience and should be great ambassadors for the Department and programmes in the future.
8. There is a caring and supportive ethos within the staff cohort for the students.
9. The Department has a good practice of combined teaching and laboratory facilities which results in an efficient use of space.

V. SUMMARY

The Bachelor degree in *Mechanical Engineering* at Vilnius Gediminas Technical University was evaluated on 2nd February, 2015. Overall the Review team was in agreement that the programme is in high demand by students, is well organised and of a good standard, equivalent to similar programmes across Europe. The Review team found evidence of good practice in assessment methods and met with a wide range of stakeholders, toured facilities and sought answers to many prepared queries based on the detailed documents provided by the university.

There has been numerous enhancements made to the programme and its various streams over the recent years and some facilities and equipment are at a very high standard. Recommendations made by previous Review teams were evaluated and implemented by the management committees of the programme and some are still ongoing. Improvements to some of the machine shops are required. It is also evident that new laboratory developments have taken place to support the Mechanical Engineering streams on offer. Teaching and lecturing staff are well qualified, both academically and from a practical point of view to deliver the programme to a high standard.

Students are well prepared to work and operate in industry and the alumni and social partners, most of who are graduates of the programme have learned the practical, technical and managerial skills to operate and manage in highly technical industries in Lithuania and abroad.

VI. GENERAL ASSESSMENT

The study programme *Mechanical Engineering* (state code – 612H33001) at Vilnius Gediminas Technical University is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an 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 students' performance assessment	3
6.	Programme management	3
	Total:	18

*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.

Grupės vadovas: Team leader:	Prof. dr. David Kennedy
Grupės nariai: Team members:	Dr. Rynno Lohmus
	Prof. dr. François Resch
	Prof. dr. Jolanta Janutėnienė
	Dr. Vigantas Kumšlytis
	Mr. Mantas Kinderis

**VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO PIRMOSIOS PAKOPOS
STUDIJŲ PROGRAMOS *MECHANIKOS INŽINERIJA* (VALSTYBINIS KODAS –
612H33001) 2015-03-16 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-53-9 IŠRAŠAS**

<...>

VI. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino technikos universiteto studijų programa *Mechanikos inžinerija* (valstybinis kodas – 612H33001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	18

* 1 - Nepatenkinamai (yra esminių trūkumų, kuriuos būtina pašalinti)

2 - Patenkinamai (tenkina minimalius reikalavimus, reikia tobulinti)

3 - Gerai (sistemiškai plėtojama sritis, turi savitų bruožų)

4 - Labai gerai (sritis yra išskirtinė)

<...>

IV. IŠSKIRTINĖS KOKYBĖS PAVYZDŽIAI

Kai kurios studijų programos *Mechanikos inžinerija* stipriosios pusės:

1. Kai kurių dalykų dėstymas anglų kalba. Šią praktiką reikėtų plėtoti įtraukiant ir technines sritis.
2. Aukštas studentų komandinio darbo lygis.
3. Absolventų įgūdžiai, kompetencijos ir gebėjimai puikiai atitinka sektoriaus poreikius. Akivaizdu, kad visi absolventai turi dideles inžinerinės karjeros galimybes, o katedrai tai yra svarbi rinkodaros galimybė.
4. Daug studentų dalyvauja sektoriaus projektuose ir semiasi darbo patirties.
5. Kai kurios dirbtuvės atitinka aukštus reikalavimus, pvz., CNC, suvirinimo, medžiagotyros, robotikos, energijos laboratorija, studentų daugiafunkcinė laboratorija, ir įrengiama operatyvaus prototipo (RP) kūrimo laboratorija. Tai labai svarbu rengiant inžinierius su tvirtais praktiniais įgūdžiais; ši praktika turėtų būti ir toliau remiama dalyvaujant socialiniams partneriams bei alumnams.
6. Ši studijų programa yra paklausi tarp užsienio studentų, ir katedra turėtų išnaudoti bei didinti šią galimybę.
7. Studentai yra labai motyvuoti ir teigiamai vertina savo mokymosi patirtį; ateityje jie turėtų gerai atstovauti savo katedrai ir studijų programai.
8. Dėstytojai yra rūpestingi ir noriai padeda studentams.

9. Katedra turi gerą mokymo ir laboratorinių priemonių derinimo patirtį, kuri padeda veiksmingai panaudoti erdvę.

V. SANTRAUKA

Bakalauro laipsnį suteikianti Vilniaus Gedimino technikos universitete dėstoma studijų programa *Mechanikos inžinerija* buvo įvertinta 2015 m. vasario 2 d. Ekspertų grupė iš esmės sutarė, kad ši programa labai paklausi tarp studentų, yra gerai organizuota ir atitinka aukštus reikalavimus, kokie taikomi panašioms Europoje vykdomoms programoms. Ekspertų grupė rado geros praktikos pavyzdžių taikant vertinimo metodus, susitiko su daugeliu socialinių dalininkų, apžiūrėjo materialinę bazę ir ieškojo atsakymų į daugelį klausimų, kuriuos parengė remdamiesi universiteto pateiktais išsamiais dokumentais.

Per pastaruosius metus ši programa ir įvairios jos specializacijos buvo daug kartų tobulinti. Kai kurios patalpos ir įranga atitinka labai aukštus standartus. Šios programos vadybos komitetai įvertino ir įgyvendino ankstesnių ekspertų grupių rekomendacijas, kai kurias iš jų įgyvendina šiuo metu. Būtina patobulinti kai kurias stakles. Be to, akivaizdūs nauji laboratorijos pakeitimai, atlikti siekiant sustiprinti kai kuriuos *Mechanikos inžinerijos* dalykus. Dėstytojai ir lektoriai yra aukštos mokslinės kvalifikacijos ir turi didelę praktinę patirtį, taigi programa dėstoma kokybiškai.

Studentai yra gerai pasirengę dirbti šiame sektoriuje, o alumnai ir socialiniai partneriai, kurių daugelis yra šios programos absolventai, įsisavino praktinius, techninius ir vadybos įgūdžius, reikalingus dirbti ir vadovauti itin specifinių gebėjimų reikalaujančioje Lietuvos bei užsienio pramonės srityje.

<...>

III. REKOMENDACIJOS

1. Kai kurias laboratorijas, pavyzdžiui, dirbtuves, stakles, metrologinę įrangą, reikia modernizuoti atsižvelgiant į šiuo metu sektoriuje taikomą praktiką. Kai kurių laboratorijų būklė kelia pavojų dėl trūkumų, susijusių su sveikatos ir saugos įranga, apsaugos įtaisais, grindų lygiu, pirmosios pagalbos vaistinėėmis ir saugos ženklų sistema. Katedra turi imtis priemonių išvengti nelaimingų atsitikimų pavojaus arba jį sumažinti.
2. Atrodo, kad dėstytojų krūvis labai didelis (paprastai 800 valandų per metus), todėl jiems sunku kūrybingai atlikti mokslinius tyrimus, dalyvauti sektoriaus veikloje, programos tobulinimo procese ir kelti savo kvalifikaciją. Būtina skatinti dėstytojus dalyvauti Europos finansavimo schemose ir ES COST projektuose. Katedra turi užtikrinti lankstumą šioje srityje, kad dėstytojai turėtų galimybę dalyvauti moksliniuose tyrimuose, bendradarbiauti su sektoriaus įmonėmis, vykti į užsienį ir taip sustiprinti katedros, fakulteto bei universiteto įvaizdį.

3. Yra galimybė daugiau dalykų dėstyti anglų kalba, todėl būtina skatinti darbuotojus jos mokytis. Šią veiklą reikia tobulinti ir plėtoti remiantis studentų grįžtamuoju ryšiu. Be to, katedra turėtų siekti, kad studentai savo pagrindinių projektų ataskaitas rašytų anglų kalba.
4. Katedrai rekomenduojama pakeisti bakalauro studijų programos dėstymo struktūrą, kad pirmaisiais programos įgyvendinimo metais studentai įgytų daugiau inžinerinės praktikos, susijusios, pavyzdžiui, su projektavimu, mechaniniu apdirbimu, suvirinimu, pagrindiniais projektais ir kolektyviniu darbu.
5. Stiprinti ryšius ir partnerystę su alumnais bei socialiniais partneriais siekiant paskatinti projektinę veiklą, tyrimus, lankymąsi sektoriaus įmonėse, programos tobulinimą, naujus modelius, aprūpinimą įranga ir užtikrinti būsimųjų absolventų užimtumą.
6. Katedra turėtų apsvarstyti galimybę sumažinti siūlomų specializacijų skaičių, nes kai kurios yra labai panašios. Taip būtų sutaupyta lėšų kitai galimai veiklai nepakenkiant sektoriaus poreikiams. Be to, katedra turėtų persvarstyti kiekvienam šios programos dalykui suteikiamų kreditų skaičių ir pasistengti jį subalansuoti. Tai galėtų paskatinti studentus dalyvauti mainų programoje *Erasmus*.

<...>

Paslaugos teikėjas patvirtina, jog yra susipažinęs su Lietuvos Respublikos baudžiamojo kodekso 235 straipsnio, numatančio atsakomybę už melagingą ar žinomai neteisingai atliktą vertimą, reikalavimais.

Vertėjos rekvizitai (vardas, pavardė, parašas)