



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Aleksandro Stulginskio universiteto

**STUDIJŲ PROGRAMOS *TVARIOJI ENERGETIKA* (valstybinis
kodas – 621E33001)**

VERTINIMO IŠVADOS

EVALUATION REPORT

OF *SUSTAINABLE ENERGY* (state code – 621E33001)

STUDY PROGRAMME

At Aleksandras Stulginskis University

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Tvarioji energetika</i>
Valstybinis kodas	621E33001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Energijos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2 metai), iššęstinė (3 metai)
Studijų programos apimtis kreditais	120 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Atsinaujinančios energijos inžinerijos magistras
Studijų programos įregistravimo data	Lietuvos Respublikos švietimo ir mokslo ministro 2007 m. sausio 29 d. įsakymu Nr. ISAK-104.

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Sustainable Energy</i>
State code	621E33001
Study area	Technological Sciences
Study field	Energy Engineering
Type of the study programme	University studies
Study cycle	Second
Study mode (length in years)	Full-time studies (2 years), part-time studies (3 years)
Volume of the study programme in credits	120 ECTS
Degree and (or) professional qualifications awarded	Master of Renewable Energy Engineering
Date of registration of the study programme	29 th January 2007, under the Order of the Minister of the Ministry for Education and Science of the Republic of Lithuania No. ISAK-104.

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The Centre for Quality Assessment in Higher Education

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I. INTRODUCTION

1.1. Background of evaluation process

The evaluation of on-going study programmes is based on the **Methodology for Evaluation of Higher Education Study Programmes**, approved by the Order No 1-01-162 of 20th December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter, SKVC). 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 the Self-evaluation Report prepared by a Higher Education Institution (hereafter, the HEI)*; 2) *a visit of the Review Panel at the higher education institution*; 3) *preparation of the evaluation report by the Review Panel and its publication*; 4) *follow-up activities*.

On the basis of the study programme external evaluation SKVC takes a decision to accredit the study programme either for 6 years or for 3 years. If evaluation of the programme is negative such programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas were 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, the following additional documents have been provided by the HEI during the site-visit:

No.	Name of the document
1.	<i>List of participants</i> Meeting with external expert evaluation group with administration of first cycle study programme “Energy Engineering” and the second cycle programme “Sustainable Energy” at Aleksandras Stulginskis University, Faculty of Agricultural Engineering, 4 th December 2015

2.	<i>List of participants</i> Meeting with external expert evaluation group with self-assessment group of first cycle study programme “Energy Engineering” and the second cycle programme “Sustainable Energy” at Aleksandras Stulginskis University, Faculty of Agricultural Engineering, 4 th December 2015
3.	<i>List of participants</i> Meeting with external expert evaluation group with teachers of first cycle study programme “Energy Engineering” and the second cycle programme “Sustainable Energy” at Aleksandras Stulginskis University, Faculty of Agricultural Engineering, 4 th December 2015
4.	List of the laboratories
5.	<i>List of participants</i> Meeting with external expert evaluation group with stakeholders and graduates of first cycle study programme “Energy Engineering” and the second cycle programme “Sustainable Energy” at Aleksandras Stulginskis University, Faculty of Agricultural Engineering, 4 th December 2015

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

Aleksandras Stulginskis University (ASU, for short) is a state institution of higher education and research, with a long tradition dating back to the 20s of the last century, whose current mission is the " ... creation and dissemination of scientific knowledge, sincerely striving for safe and healthy food and full-fledged living environment for all people of Lithuania". The mission of ASU is defined in a way similar to those of other leading European universities.

The University assumes its social responsibility by providing scientific support for one of the most important components of the Lithuanian state economy: for agriculture and food production. Agriculture in Lithuania is a traditional, consistently developing and modernizing sector of the economy with a stable annual growth and a strong influence on other sectors. Looking to the future the development of this sector will continue to require a large number of highly qualified professionals educated at the best universities.

ASU includes five faculties (Agronomy, Economics and Management, Forest Sciences and Ecology, Water and Land Management, and Agricultural Engineering) and operates a Centre of Mathematics, Physics and Information Technologies, as well as a Centre of Cultural Communication and Educology, which in turn hosts the Departments of Languages and Professional Pedagogy and Psychology. One of them, Faculty of Agricultural Engineering implements the study programme *Sustainable Energy* (previous name – *Engineering of Agroenergetics*).

The structural unit implementing the study programme is the Faculty of Agricultural Engineering and its three institutes: Agricultural Engineering and Safety, Power and Transport Machinery

Engineering, and Energy and Biotechnology Engineering. The staff of the Centre of Mathematics, Physics and Information Technologies, the Faculties of: Agronomy, Forest Sciences and Ecology, and other academic units also deliver some of the study subjects.

1.4. The Review Panel

The Review Panel was composed according to the *Description of the Review Team Member Recruitment*, approved by the Order No 1-01-151, 11/11/2011 of the Director of the Centre for Quality Assessment in Higher Education. The visit to the HEI was conducted by the Panel on 4th December 2015.

1. Dr. Thomas Flower (Chair of the Team)

Dean of Faculty at the UAS Hamburg, Faculty for Engineering and Computer Sciences, Germany.

2. Prof. Zbigniew Hanzelka

Director of the Department of Power Electronics and Energy Control Systems at the AGH University of Science and Technology, Poland.

3. Dr. Ramūnas Gatautis

Research Associate at Lithuanian Energy Institute, Lithuania.

4. Mr Giedrius Gecevičius

Doctorate Candidate (Energy and Power Engineering) at Lithuanian Energy Institute, Lithuania.

5. Prof. Abdunaser I. Sayma (not available for on-site review)

Professor of Energy Engineering, and Associate Dean for Postgraduate Studies at the School of Mathematics, Computer Science and Engineering, City University London, United Kingdom.

6. Prof. Frank Behrendt (not available for on-site review)

Professor for Energy Process Engineering and Conversion Technologies for Renewable Energies at Berlin Institute of Technology (TU Berlin), Germany.

II. PROGRAMME ANALYSIS

The European and Lithuanian directives and regulations provide the strategic initiative which drives the development of the consumption of renewable energy resources in the production of electricity and provision of space heating. ASU and the Faculty of Agricultural Engineering have a great potential (facilities and scientists with extensive experience) to develop research and studies of renewable energy resources, energy conversion and respective application technologies.

The evaluated *Sustainable Energy* curriculum is fully consistent with the University mission formulated that way.

Most of the relevant technologies are strongly under development, such that there is a lack of knowledge and also human resources when implementing new projects. Moreover, the sphere of renewable energy resources and energy products is characterized by a wide technical scope and large capacity of production. This provides for a great opportunity for the University both in the area of teaching and research.

The analyzed study programme of the second cycle is unique and authentic, distinguished itself from study programmes in energy engineering at other universities, not only in Lithuania. It fosters old traditions of renewable energy research with a strong scientific research base and actively involved scientists and social partners (companies, associations, universities, and science institutions in Lithuania and abroad).

2.1. Programme aims and learning outcomes

The aim of the second cycle study programme *Sustainable Energy* is defined in a proper way. According to the SER, it is “to deepen the knowledge essential for the activity in the global market and implementation of new technologies in the field of energy engineering, create and improve the technologies and equipment of renewable energy production, assess renewable energy resources and their integration into the systems of usual energy”.

Intended learning outcomes of the study programme define what knowledge, understanding and abilities graduates are expected to acquire, as well as define their readiness for professional career. The intended learning outcomes are linked to the study subjects lectured within the programme. The programme aims and intended learning outcomes are based on the academic

and professional requirements and are consistent with the type and level of studies and the level of qualifications offered.

Existing aims and intended learning outcomes have been amended in accordance with the recommendations of the previous external evaluation.

Based on the discussion with the graduates of the programme and their employers it can be concluded that the aims and the intended learning outcomes of the programme, **as they are described**, meet the needs of the Lithuanian society and industry. Moreover, the Panel members confirmed the compliance of the aims and the intended learning outcomes of the programme to the needs of the European labour market. The programme prepares the graduates for continuing their studies to the third level and for independent life-long learning.

However, the former title of the study programme was *Engineering of Agroenergetics*. It has been changed to the present *Sustainable Energy*, with limited modifications to its content. The programme is oriented towards issues associated with bioengineering, whereas the new title is much wider, and includes disciplines that are not presented in the curriculum, e.g. smart grids, smart cities, smart buildings, smart meters, energy market, DSM, DSR, distributed control, signal processing, information and communication technologies, energy stores, photovoltaics, wind power (the last two to a larger extent than they are presently taught).

The intended learning outcomes of the programme, its content and the qualifications offered are clearly defined in comparison with the previous name – *Engineering of Agroenergetics*. The programme lacks full compatibility with its present title *Sustainable Energy*. This could present a source of confusion to potential applicants if they do not take into account the specialisation of the higher education institution and do not familiarise themselves with the curriculum details prior to making their decision on the field of studies.

The programme prepares engineers to work in the field of renewable energy, which is likely to become a central part of industry and agriculture. The distributed generation of energy as practiced in the agricultural sector appears to be becoming an important contribution to the safe and reliable generation, distribution, and effective use of energy.

2.2. Curriculum design

The volume of the study programme (level seven, according to European Qualifications Framework) is 120 ECTS, i.e. 3200 hours. The duration of studies is two years, or four

semesters. Each semester comprises 30 ECTS; not more than five study subjects are studied in a semester. The duration of part-time studies is three years or six semesters; 1-4 study subjects are covered per semester, 15-24 ECTS each. The number of educational components and thus the number of exams does not exceed the legal requirements¹.

The study programme is composed of:

1. Study subjects of the study field (72 ECTS), 54 ECTS of them are compulsory and 18 ECTS are electives (legal requirement is ≥ 60 ECTS) – 60 % of the volume of the study programme;
2. Study subjects preparatory to doctoral studies – 18 ECTS (legal requirement ≤ 30 ECTS) – 15% of the volume of the study programme;
3. Master's degree thesis – 30 ECTS (legal requirement ≥ 30 ECTS) – 25 % of the total volume of the study programme.

The programme has three elective study areas.

1. Heat and Radiation Energy Conversion. This option is focused on the energetics of the agricultural industry.
2. Mechanical Energy Conversion. The target market for this option is not very clear.
3. Conversion of Biological and Chemical Energy. This option focusses on the field of Biofuels, and could potentially prepare the graduates for a scientific research career.

The educational components appear to be well enough designed and are appropriate to achieve the intended learning outcomes. They are uniform in both full-time and part-time studies, and comply with the national legal requirements.

However, within the group of subjects related to renewable energy sources some areas for improvement, including repetition of certain lecture contents (this refers to the first cycle studies), are identified. The opinion of the Review Panel also can be illustrated with some particular examples:

1. *Integration of Renewable Energy to Energy Systems*. According to the study subject description, the purpose of the subject is "... to provide students with the knowledge and skills ... for integration of the renewable energy to common energy systems." The integration should to the same extent concern all distributed/renewable energy sources.

¹ General Requirements for Master Degree Study Programmes, approved by the Minister for Education and Science of the Republic of Lithuania on 3 June 2010 No V-826.

While according to the description, the subject is dominated by bio-energy sources, information related to wind turbines and PV installations integration. This is insufficient. The study subject (similarly to other subjects) lacks information about power electronic interfaces. It is also evident from the list of recommended literature. All items on the recommended bibliography list bio-energy sources and those are in the Lithuanian language. Only two books in English are related to other energy sources. The role of professors teaching this subject is not very clear as well (in several other cases a similar situation occurs). One of the professors plays the role of the coordinating teacher and is also the author of study subject description. Another professor giving a lecture according to that description, which is not prepared by him. This situation is not appropriate.

2. *Renewable Energy Sources*. The subject with the same title, and similar substantive content, is taught at the first level studies as well. In the intended learning outcomes of the study subject is mentioned: "... ability to ... analyse and interpret results of life cycle assessment for different energy systems ...” (a separate subject: Life Cycle Assessment of Renewable Energy) and contents of study subjects comprises "... integration of the renewable energy to common energy systems...” (a separate subject: Integration of Renewable Energy to Energy Systems).
3. *Life Cycle Assessment of Renewable Energy*. The list of recommended literature comprises solely the items in English.
4. *Electromechanical Converters for Renewable Energy*. It is pity that the lecture subject is related exclusively to electromechanical converters. The programme lacks a subject related to power electronic converters. Knowledge about power electronic systems, provided to students at the first level of studies, is insufficient for integration of wind turbines and PV installations to the power network. This knowledge is also not being covered within the subject Wind Energetics (as follows from the subject description).
5. *Hybrid Renewable Energy Systems*. Goal of the study subject and the intended learning outcomes are the same as on the first level study subject – Renewable Energy Systems. It is hard to talk about hybrid systems without information on monitoring systems, SCADA, energy storage systems etc. These topics are absent in the evaluated programme.

The rest of the study subjects' content is fully consistent with the aim and the level of studies.

The Review Panel noticed that although the study programme comprises study subjects related to various renewable energy sources, there is a lack of a separate subject in solar power. Attention also should be paid that the SER lacks the description of the study subject Hydropower.

In the Review Panel's point of view, the methods of teaching are rather traditional. There is no evidence that activating forms of learning and teaching are practiced yet.

With the exceptions, described above, the content and methods of the study subjects, as well as the scope of the programme are appropriate for the achievement of the intended learning outcomes, as those are defined.

The content of the programme mostly reflects the latest achievements in agricultural power engineering. In order to fully meet the requirements arising from the programme name, it should be wider supplemented within the scope of sustainable energy.

The programme provides the profound education to the students in the field of bio-energy sources. The programme offers individual specialisation and opens space for individual development.

2.3. Teaching staff

In the analyzed period professors delivered seven study subjects in the study field, the volume of which was 468 hrs: 27,7 % of the volume of all study subjects in the study field (legal requirement is a minimum of 20 %). Only teachers, who have a PhD degree, participate in the implementation of the study programme (according to the regulation, not fewer than 80 % of all teachers employed in the study programme should possess the PhD degree).

Thus the study programme is provided by the staff meeting the legal requirements². The average pedagogical workload is according to the Regulation of the Workload and Time Structure of Teachers and Academic Staff of ASU.

Most teachers working in the study programme have extensive experience in pedagogical and research work. Pedagogical experience ranges from 7 to 47 years (28,2 years on average). The teachers possessing different pedagogical titles are appointed on competitive basis and assessed every five years for their pedagogical, methodological and scientific work.

² General Requirements for Master Degree Study Programmes, approved by the Minister for Education and Science of the Republic of Lithuania on 3 June 2010 No V-826.

The teachers involved in the programme are active researchers. In the assessed period, they published 27 methodological aids and articles: ISI WOS – 83, TDB – 40, of science popularization – 81, and delivered 170 presentations in conferences. Their scientific results are patented internationally and nationally (four patents). They also participated in the organization of scientific conferences and take part in national and international research programmes. University teachers are motivated to participate in projects by, inter alia, periodic assessment, which results in an influence on their salaries.

A number of teachers actively participate in other activities, which are closely related to study programmes and their development: national and international scientific technical institutions, they are members of various committees and other bodies. Six teachers of the study programme meet the requirements to be involved in doctoral studies.

According to the staff CVs, some professors do not have practical experience outside the University.

In general the qualifications of the teaching staff are adequate to ensure the achievement of the intended learning outcomes.

The teaching process relies mostly on associate professors. They deliver 63,9 % of lectures, supervise 66,7 % of laboratory work, and conduct 55,1 % of other contact hours (practical classes, etc.) and 77,4 % is allotted to extracurricular activities. The workload of associate professor is 840 hours of pedagogical work (64,2 %) within the study programme, 792 are allotted to contact work with students. The average age of academic staff is 55,9 years (range from 35 to 65 or more). An excessive didactic workload may significantly hamper scientific development and achieving the academic title of professor. Particularly in the context of increasing publication requirements, being a chief criterion for promotion, as was emphasized in the meeting with the academic staff.

Doctoral students are not active in the teaching process as is apparent from both the SER and the meeting with the teachers. However, the number of the teaching staff is adequate to ensure the achievement of the intended learning outcomes.

Due to the decrease in the academic workload, the number of the staff has also been decreasing since 2010: there were 55.2 regular positions for teachers in the academic year 2010/2011, 52.85 regular positions in 2011/2012, 44.8 regular positions in 2012/2013, 39.4 regular positions in 2013/2014 and 39.95 regular positions in 2014/2015. Currently seven professors and eight

associate professors participate in the study programme. Full-time teachers, whose main working place is ASU, are predominant in the study programme. Two teachers combine their work in the study programme with administrative work at the University. The number of professors did not change in the analyzed period of time, whilst the number of associate professors decreased from eleven to eight and lecturers disappeared. The ratio of students to academic teachers is 2.3 for the whole programme (the norm of 12:1, according to the *Methodology of Financing State Universities of Lithuania*). This indicates “under-utilization” of the staff. The capacity of the University for student intake into this programme is by far not filled to date. The University has large reserves. At the same time there is insufficient information about the programme (marketing) aimed at remedying this situation.

Currently teaching staff turnover is able to ensure an adequate provision of the programme.

Following the University regulations on qualification improvement, the teachers have a right and are obliged to take care of the improvement of their qualifications by developing their knowledge and skills. Qualification improvement is planned annually and presented in the Individual Assignments for Teachers. This activity is mostly reflected in the submitted CVs, but in some cases there are no statements about teachers’ participation in training and advanced courses.

The dominant form of increasing the staff qualifications are multi-days (max. one week) visits abroad or participation in conferences. There are no long-term stays in domestic/foreign research institutions. This form, however, is a more effective method for improvement professional and communication competencies. Academic staff confirmed the possibility of application for participation in short-term study trips, qualification improvement courses, scientific-practical seminars and conferences in Lithuania and abroad, but they also pointed out difficulties in obtaining an approval because of limited funding.

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme, but an increase of this support is recommended.

Field of the teacher’s research should comply with the contents of the study subjects taught, but in some singular cases, this requirement is not satisfied. It comes from the titles of their papers/books published during the evaluated period. While focusing their research interests on

biomass, biofuel etc., few lecturers were found to teach at the same time subjects that these topics do not apply to.

Generally, the teaching staff of the programme is with a few exceptions involved in research directly related to the study programme being evaluated.

Strength of the programme is the high competence of the academic staff and their dedication to scientific research (in the area of biotechnology) and didactic work.

2.4. Facilities and learning resources

A sufficient number of lecture halls and classrooms are available. Most of them and also laboratories are equipped with specialized video facilities and equipment, Internet access, computerized workplaces for teachers, stands, models, and other visual aids. They are equipped with the necessary furniture and basic didactical material. Projectors and computers for multimedia based instruction are available. Very modern didactic equipment like digital whiteboards or smartboards are yet missing.

The University uses the public domain software bundle Moodle as a modern eLearning tool. All students reported upon questioning to have access to the University servers from their private computers. Surprising is that part-time students are not able to use the Moodle system.

The Review Panel visited eleven laboratories:

- Laboratory of Renewable Energy;
- Laboratory of Thermophysical Properties of Solid Biofusels;
- Biogas Laboratory;
- Solid Biofuel Treatment Laboratory;
- Tribology Laboratory;
- Laboratory of Automation;
- Thermodynamics Laboratory;
- Laboratory of Farm Technologies;
- Laboratory of Electrotechnics and Electrical Measurements;
- Laboratory of Electrical Machines;
- Laboratory of Electronics.

On this basis it can be concluded that:

- The teaching and learning equipment in laboratories is sufficient for the teaching process purposes and achieving the intended learning outcomes;
- The nature of laboratories is primarily educational, a number of them, e.g. Laboratory of Renewable Energy, Laboratory of Automation, Laboratory of Electrotechnics and Electrical Measurements, Laboratory of Electrical Machines, Laboratory of Electronics have little to no research character. Neither equipment nor instrumentation typically required to conduct research in areas consistent with this scope of the programme and coinciding with the laboratories title are available yet.

The Review Panel visited the University library. The University has online access to some of the journals, books and textbooks of leading publishers via Lithuanian Research Library Consortium. Conventional access to literature, i.e. walking to the library, lending printed books or journals, or ordering literature from other University libraries, is possible. It is surprising that there is no access to the IEEE Explorer database which is of crucial importance for the evaluated study programme.

Teaching materials – textbooks, books, periodical publications, databases are adequate and accessible.

A potential strength of the programme is that modernization of teaching laboratories is currently being carried out, accordingly the Panel did not take the identified weaknesses of the area as the main source for the judgement.

2.5. Study process and students' performance assessment

The admission procedure to the study programme is announced on the ASU website. The requirements for applicants for the second degree studies are described in details in the SER. However, the description does not define general engineering, special study subjects and additional studies which are necessary for getting ECTS within the specified admittance procedures but, as follows from the meetings with the Faculty administration, the admittance procedure is unambiguous and its application does not cause difficulties.

Information about the programme is provided on the University website which contains description of the study programme, rules of admission, study costs and discounts.

It should be emphasized that within the evaluated period all state-funded places were filled, however their number are declining, as is the number of students.

It can be concluded that the admission to the programme requirements are sufficiently well-founded.

The competitive score for state-funded places is changing in respective years, but it maintains within the average 7.0-8.0. That means good students are admitted and it is a merit of the programme. The majority of them are students who completed the first degree in *Engineering of Agroenergetics* (currently *Energy Engineering*) at ASU – in respective years not more than two students participated in supplementary studies.

The academic year consists of two semesters: autumn and spring. The working week consists of five days. The studies are implemented in accordance with the timetable confirmed by the Dean that is designed for the whole semester. The timetable is announced on the Information Board and on the website of the Faculty.

The classes of the one study subject usually last for 2-4 academic hours. It is worth considering limiting the maximum number of hours of lessons in one subject to 3. The weekly number of classroom work ranges from 14 to 30 academic hours. About 28.8 % of the volume of study subjects is allotted to classroom hours, whereas students' self-dependent work, research work, as well as writing and defence of the Master's thesis constitute 71.2 % of the total volume of the study programme. Classroom activities are distributed in 3-4 days so that students could combine Master degree studies with their professional activity and research work.

Although advanced, disabled and working students have an opportunity to study according to an individually designed schedule (after obtaining the consent of the Dean) there were no such students noted during the evaluation.

During the evaluated period, 15 students (20 %) out of 75 admitted to the second cycle study programme terminated their studies. In order to improve students' progress and reduce the number of students dropping out of their studies, the University has established a system of monitoring students' progress: a system of students' interim accounts is organized in the middle of a semester and assessed using a 0-1-2 point system. The summary of interim results is discussed in the meeting of the Dean's Office and individual discussions with the students having lower assessments. This is a very good approach.

The number of admitted students who have successfully completed their studies diminished. 81.25 % of admitted students completed their studies in 2012; however, only 45 % of admitted students completed their studies in 2014.

It has been established in the SER (and confirmed in the meetings with both: academic staff and students) that the teachers are expected to upload teaching materials on the virtual learning environment, as well as apply teaching methods for students' self-dependent work more actively. It might be worthwhile to require teachers and accept it as a binding rule that lecture materials are placed on the platform. This is very important as some students are simultaneously working and studying.

The organisation of the study process ensures an adequate provision of the programme and the achievement of the intended learning outcomes.

According to ASU Regulation on Master Studies, students have to present the results of scientific research each semester, participate in scientific conferences, and have at least one publication of the Master thesis before its defence. It is usually done in semester two or four (semester four or six in part-time studies). In the evaluated period students have published 32 publications (alone or in co-authorship) and delivered a number of presentations in scientific conferences.

According to information provided in the SER, the majority of students participate in artistic activities (e.g. folk dance group, folk music group, students' theatre, and choir), take part in national and international festivals and contests.

University students can take part in various fields of sports, also within the existing Physical Training and Sports Centre at ASU. The University received the status of a health-promoting university in 2009.

Students of the evaluated programme are encouraged to participate in research, artistic and applied research activities.

Although ASU has bilateral ERASMUS exchange agreements with 82 European universities and students have the opportunity to participate in international mobility opportunities, students' involvement in international exchange programmes remains rather low. Only six students of the Faculty of Agricultural Engineering have participated in an exchange since 2011. One of the reasons, according to the authors of the SER, is insufficient foreign language skills. At the same time there are no ASU activities aimed at rectifying this situation, e.g. the study programme does not comprise foreign languages teaching, there are no lectures in foreign languages delivered by visiting professors from abroad; the number of foreign students at ASU is also small. Activities of the International Department of ASU seem to be not sufficiently effective.

Student mobility can and should be improved. The Review Panel recommends to take effective action in order to increase the number of students trips to foreign universities. The same should apply to teachers. International exchange of professors is always at the beginning of a more intensive student exchange.

Students are provided with extensive information about the functioning of the University, organization of studies, students' rights and responsibilities. This is accomplished by means of, inter alia, the yearly publication *For the First Year Student of ASU*. Every student has access to the electronic records book which contains information on his/her study outcomes, payments, etc. Also the University website is used for the publication of relevant information and its timely dissemination: timetables of classes and examinations, schedule of teachers' consultations and their contacts, offers for study trips, practical trainings, employment and other information. The detailed information about the studies and other important issues can be obtained at the Dean's office.

The University Career Centre helps ASU students to prepare themselves for a career, helps them to build their professional competencies and supports them in finding jobs.

The University provides an extensive system of social support: incentive grants for learning results, one-time grants from the University and Faculty grant funds, social grants (granted by the Fund of the State), memorial grants or the ones awarded by ASU sponsors as well as allowances for orphans or disabled students. The basis of this system functioning are the state legal provisions and regulations of the ASU Rector and the Dean. The system has been functioning for several years and no complaints regarding it were expressed both in the SER and during the meetings with students.

All students have a right to be accommodated in the student hostels of the University. Students have broadband Internet access in the hostels.

A special emphasis should be given to the high opinion expressed by the students as to the well-functioning of the Dean office and the Faculty administration. Students have emphasized very friendly relationships with professors, as well as their kindness and help in all matters regarding teaching process.

The higher education institution ensures an adequate level of academic and social support.

The grading policy and assessment of the intended learning outcomes, provided in the study subject descriptions in the SER, are presented in a clear and unambiguous manner. The decisive influence on the final grade is the exam score. All exams are in written form (test or solving problems/answering questions) with the exception of research works where the basis for assessment is presentation of results. A separate procedure has been adopted for the Master thesis, described in details in the SER.

The organisation of the exams and their schedule for both the full-time and part-time students is governed by the Rector's regulation. Examinations are taken during the examination session established at the beginning of the semester in the timetable of examinations. In justified cases students have the opportunity to modify the dates of the exams. The duration of an examination session depends on the number of study subjects; it cannot exceed more than four weeks. Examinations are distributed evenly throughout the session with breaks of at least two days. The weighted coefficient of examination marks exceeded eight points (out of a possible 10) except in the year 2012/13. The number of students that failed their examinations was relatively small; it ranged up to 15.38 % of the total number of students only in the academic year 2013-2014.

The distribution of the grades for Master's theses ranges from nine (very good) to eight (good). In several browsed Master theses, the sources of figures and photographs were not indicated.

The assessment system of students' performance is clear, adequate and publicly accessible.

Students and alumni of both the first and the second degree studies participated in the meeting with the Panel. They have chosen this field of studies because of, inter alia, the chance for good employment. Their expectations have been fulfilled.

Alumni have acknowledged that the greatest advantage of the study programme is the opportunity for choosing (on the basis of broad general knowledge) the study topic, e.g. the leading energy source. For a relatively small number of students, a key positive aspect of the studies is the individual character of the study programme with easy access to laboratories and friendly contacts with professors. From their present professional perspective alumni judge professors to be highly competent experts, with whom they now are commercially cooperating in solving professional problems or within jointly developed projects, even international ones. In their opinion, the orientation towards biotechnological energy sources is the most appropriate choice of specialization at ASU, and it is in line with Lithuanian needs and has a good future potential.

According to the survey data (the SER) and the views expressed during the meeting with alumni and social partners, the employers positively assess the practical skills, loyalty and communicative skills of the University students and graduates. The evaluated programme is considered to be research and technology oriented, however, currently a certain share of alumni perform predominantly managerial functions in bio-business and other industry. Attention has been drawn to the fact that the study programme does not include the subjects from the area of management and economics. According to the alumni' opinion, the programme should be supplemented with these subjects. Also during the meeting was stated that the labour market presently does not motivate the continuation of studies at the Master's level. Such a decision is based on the assessment of the future career opportunities. The majority of alumni who participate in the programme do work, broadly speaking, in the field of electrical engineering. In the alumni opinion, they specifically received a good professional preparation during the first level studies completed at ASU.

Students are well prepared, as confirmed by the entrance exams results, motivated to study (good grades at exams and Master theses defences), having good relationship with professors and the University administration. It is pity that only a small number of the students take an advantage of studying abroad, although they have access to such opportunities.

2.6. Programme management

At the Faculty level exists a programme management system and a formalized structure of monitoring the quality of system operation. Data about the programme is collected from numerous sources. Apart from the standard procedure, determined by state provisions and decisions of the University administration, opinions are also collected from employers, students and alumni, Centre of Innovations and Study Quality, companies and external institutions, etc. Many opinions are acquired through such surveys. The internal programme evaluation procedure is conducted by appointed organizational units of the Faculty, Committees, working groups, etc. The roles of the programme elements and schedule of their work are unambiguously defined.

Students take part in the management of the study process and evaluation of its efficiency. They are represented by the University Students' Council and the Faculty's Students Council. Student representatives are the members of the Faculty Council, Dean's Office, Study Programme Committee, Teacher Attestation Committee and other related committees.

Responsibilities for decisions and monitoring of the implementation of the programme are clearly allocated.

Assessment and improvement of the study programme and its study subjects is a continuous process and is implemented by partial evaluation of the study programme conducted every year and a systematic evaluation and the self-evaluation conducted in accordance with the methodology developed by the Centre for Quality Assessment in Higher Education in Lithuania. It can be concluded that information and data on the implementation of the programme are regularly collected, analysed and are used for the improvement action purposes.

The method of assessing teaching staff performance by the students is not fully satisfactory. It is described in a sketchy way in the SER. From the meeting with the students and teachers it follows that students have an opportunity to express their opinion about the quality of teaching, but they not very often make the use of it. The Centre of Innovations and Study Quality carries out regular surveys: students' opinion surveys on the quality of teaching and study subjects which are conducted annually. Students, however, do not obtain feedback information in any form about the evaluation results. This discourages them from participating in the following surveys, as has been confirmed during the meeting with the students. This situation should be changed. Students should receive data summarizing the results of the teaching quality surveys.

The meeting with alumni and social partners has confirmed facts provided in the SER that they actively participate in activities of various committees and working groups related to the evaluation and improvement of the study programme, e.g. Study Programme Committee, Assessment Committee for Master's Degree Theses, etc.

It is worth emphasising that there exists a very good collaboration with the stakeholders and very good opinion about the evaluated programme market value and the graduates' professional preparation level by the employers.

III. RECOMMENDATIONS

1. In the Review Panel opinion, the conformity between the programme title *Sustainable Energy* and its substitutive contents is incomplete. The latter is more adequate to the former programme title *Engineering of Agroenergetics*.

The Review Panel fully agrees with the reason behind the change of previous study programme name. At the same time, however, recommendation for further improvement of the current name is expressed (eg. Renewable Energy Technologies?).

Keeping the present title requires modification of the programme structure in order to match it to the smart grid concept. The Panel suggests to supplement the substantive scope of existing subjects and/or introduce the new subjects related to:

- a. Photovoltaics (within a broader scope than is presently taught);
- b. Wind Power (within a broader scope than is presently taught);
- c. Power electronics;
- d. Smart grids/smart metering/smart buildings;
- e. Information and communication technologies;
- f. Energy storage;
- g. Energy efficiency;
- h. Energy market.

Consider supplementing the study programme with a subject(s) in the areas of management and economics, maybe as elective(s).

2. Refers to *Programme aims and learning outcomes*

Knowledge and its application – Outcomes ... - ... new methods of measurement (Annex 3.1).

The knowledge provided within the programme regards exclusively measurements in biosystems engineering, and not, as could be inferred from the intended learning outcome “... new methods of measurement ...”, also in other engineering areas.

Special abilities – abilities to create and improve technologies ... – Study subjects (Annex 3.1).

The list of study subjects does not include photovoltaic installations, which are comprised in the curriculum, and specifying them at that point is substantially justified.

Personal abilities (Annex 3.1).

- (i) Lead working group ..., to plan individual and collective tasks.
- (ii) Ability to self-dependently work ... to communicate and efficiently work ... in international level

Not all the forms of teaching activity enable to achieve these intended learning outcomes to the same extent. It is worth to mention those study subjects, which enable to attain those to the greatest extent.

3. Refers to *Curriculum design*

The substantive scope of existing study subjects should be supplemented and/or new subjects should be introduced (see recommendation No 1).

Modern simulation tools, e.g. Matlab-Simulink and LabVIEW should be incorporated into the programme (students participating in the meeting with the Review Panel were not acquainted with these simulation tools).

The Review Panel recommends careful analysis of the detailed content of the study subjects in order to eliminate any possible repetitions.

4. Refers to *Teaching staff*

A significant majority of academic staff associated with the programme remains active in research areas of Bioenergy, Environmental Engineering and Mechanical Engineering, whereas, to a lesser extent, Renewable Energy Sources. In few cases the research activity of professors was found not to match the subjects they teach. This obviously must influence the level of delivered knowledge. This concerns primarily the group of subjects in the domain of renewable energy sources. It is recommended to ensure the development of own research personnel in these areas. Since this process requires time, lecturers from other universities/research institutions (including foreign ones) and/or from industry, should be invited in the interim.

The level of command in the English language by the programme teaching staff is rather poor. Staff should be motivated to improve their English language skills.

At the same time, the Review Panel noticed that 5 teachers from the second cycle programme declare their foreign language as German (33%), and 1 teacher – French (7%)

5. Refers to *Facilities and learning resources*

A further development of research laboratories is necessary, particularly those related to automation, monitoring, power electronics, electric machines and electrical engineering. Access to the IEEE Explorer database is indispensable for the development of the area within the scope of the programme.

6. Refers to *Study process and students' performance assessment*

Take more effective actions towards increasing the number of students' trips to foreign universities. The same should also apply to the teachers. International exchange of professors is always a good start for a more intensive exchange of students.

Introduce lectures delivered in foreign languages. Provide students with opportunities for improving their command of a foreign language.

The numbers of students are rather low, close to the minimal requirements to pursue the study programme. It was not clear what measures the Institute is undertaking to attract more students to the programme.

7. Refers to *Programme management*

The method of assessing teachers' performance by students is not fully satisfactory. Students do not obtain feedback information in any form about the assessment results.

8. The Review Panel recommends continuation of actions aimed at successful implementation of the former accreditation (2012) recommendations regarding:

- a. A more effective action in order to increase the incoming and outgoing mobility of both students and academic staff. No significant success in the implementation of this recommendation.
- b. Modernization of the learning methods, by incorporating elements of problem based learning. This recommendation has not been fully implemented.
- c. Introduction of the new form for assessment of the educational components – formative in place of the currently existing traditional summative assessment. Lack of information on the implementation of this recommendation.

IV. EXAMPLES OF EXCELLENCE

1. In the evaluated study programme special attention should be given to very good relationship between the Faculty administration, teaching staff and students. This has been particularly expressed by students, who emphasized the helpfulness and kindness of their teachers and easy contact, also outside the contact hours.
2. The Faculty, and thus the evaluated programme, has strong support and effective collaboration with alumni and social partners. It is based not only on the formal but also on personal relationships. The University staff can rely on help and active participation of stakeholders in many University initiatives. This is a very valuable help, quite seldom occurring in other Universities.

V. SUMMARY

The evaluated study programme meets the needs of the society and Lithuanian and European labour market. It prepares engineers to work in the field of renewable energy, which is likely to become a prosperous part of industry and agriculture. The distributed generation of energy as practised in the agricultural sector seems to become an important contribution to the safe and reliable generation, distribution, and effective use of energy.

The original programme concerning sustainable development and based on the agroenergetics has a unique character not only in the scale of Lithuania. The programme is developed and conducted by a highly competent team of teachers and researches and has a chance to become an interesting educational offer for Central and Eastern Europe. It is evident that the circle of programme authors has a clear vision and for the past several years has been consequently implementing it. Further equally effective actions and adequate financial support for further development are required.

The Review Panel points out the discrepancy between the programme title and its substantive content. As can be concluded from the SER, the programme content is more adequate to its former title *Engineering of Agroenergetics*. The programme title was changed whereas its former content has been retained. *Sustainable Energy* spans a broad thematic range and comprises many fields of technology that are not currently found to the sufficient extent on the programme. This is the Review Panel's principal objection to the evaluated programme having an influence on the final score of the assessment.

VI. GENERAL ASSESSMENT

The study programme *Sustainable Energy* (state code – 621E33001) at Aleksandras Stulginskis University is given a 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	2
2.	Curriculum design	2
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	3
	Total:	16

*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. Abdalnaser I. Sayma
Grupės nariai: Team members:	Prof. Zbigniew Hanzelka
	Prof. Frank Behrendt
	Dr. Thomas Flower
	Dr. Ramūnas Gatautis
	Mr Giedrius Gecevičius

**ALEKSANDRO STULGINSKIO UNIVERSITETO ANTROSIOS PAKOPOS STUDIJŲ
PROGRAMOS *TVARIOJI ENERGETIKA* (VALSTYBINIS KODAS – 621E33001) 2016-
05-16 EKSPERTINIO VERTINIMO IŠVADŲ
NR. SV4-106 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Aleksandro Stulginskio universiteto studijų programa *Tvarioji energetika* (valstybinis kodas – 621E33001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	2
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	16

* 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)

<...>

V. SANTRAUKA

Vertinamoji studijų programa atitinka Lietuvos bei Europos darbo rinkos poreikius. Šioje studijų programoje yra rengiami inžinieriai, dirbsiantys atsinaujinančiosios energetikos srityje, kuri galimai taps klestinčia pramonės ir žemės ūkio sritimi. Panašu, kad žemės ūkyje praktikuojama paskirstytoji (elektros) energijos gamyba labai prisidės prie saugios ir patikimos energijos gamybos, paskirstymo ir veiksmingo naudojimo.

Originali studijų programa (iki studijų programos pavadinimo pakeitimo), susijusi su tvariąja plėtra ir pagrįsta agroenergetika, yra unikali ne tik Lietuvos mastu. Šią studijų programą tobulina ir vykdo aukštos kvalifikacijos dėstytojų bei tyrėjų komanda, ir ji gali tapti įdomiu edukaciniu pasiūlymu Centrinei bei Rytų Europai. Akivaizdu, kad programos rengėjai turi aiškią viziją ir

kelis pastaruosius metus ją įgyvendina. Norint toliau tobulinti studijų programą, reikia imtis kitų tiek pat veiksmingų priemonių, įskaitant ir finansinę paramą.

Ekspertų grupė identifikavo, kad šios studijų programos pavadinimas ir jos turinys ne itin dera vienas su kitu. Pagal savianalizės suvestinėje pateiktus duomenis, galima prieiti išvados, kad programos turinys labiau atitinka ankstesnį programos pavadinimą *Agroenergetikos inžinerija*. Studijų programos pavadinimas buvo pakeistas, o ankstesnis turinys išliko. *Tvarioji energetika* apima daug temų bei atitinkamai technologijos sričių, kurios šiuo metu studijų programoje arba yra dėstomos nepakankama apimtimi, arba nėra įtrauktos. Ekspertų grupės nuomone, tai yra esminis studijų programos trūkumas, turėjęs įtakos galutiniam vertinimo rezultatui.

<...>

IV. IŠSKIRTINĖS KOKYBĖS PAVYZDŽIAI

1. Įvertinus studijų programą *Tvarioji energetika*, visų pirma, reikėtų akcentuoti labai gerus Žemės ūkio inžinerijos fakulteto administracijos, dėstytojų ir studentų santykius. Tai ypač pabrėžė studentai, kurių teigimu, jų dėstytojai yra paslaugūs, geranoriški ir pasiekiami ne tik per kontaktines valandas.
2. Fakultetą, taigi ir studijų programą itin palaiko programos absolventai ir socialiniai partneriai, su kuriais fakultetas veiksmingai bendradarbiauja. Palaikomi ne tik formalūs, bet ir asmeniniai ryšiai. Universitetas gali remtis socialinių partnerių pagalba ir aktyviu dalyvavimu daugelyje universiteto iniciatyvų. Iš tiesų, tai yra labai naudinga pagalba, gana retai pasitaikanti kitose aukštosiose mokyklose.

<...>

III. REKOMENDACIJOS

1. Ekspertų grupės nuomone, studijų programos pavadinimas *Tvarioji energetika* ne visiškai dera su jos turiniu. Turinys labiau atitinka ankstesnį programos pavadinimą *Agroenergetikos inžinerija*.

Ekspertų grupė pritaria motyvui keisti studijų programos pavadinimą. Vis dėlto, dabartinio studijų programos pavadinimo tinkamumą reikėtų dar kartą apsvarstyti (galbūt, keisti jį, pavyzdžiui, į *Atsinaujinančios energijos technologijas*).

Pažymėtina, kad norint pasilikti prie esamo studijų programos pavadinimo, reikia keisti programos sandarą, kad ji atitiktų pažangiųjų tinklų koncepciją. Ekspertų grupė siūlo papildyti šiuo metu programoje studijuojamus dalykus ir (arba) įtraukti naujus, susijusius su:

- i. Fotelektra (platesne apimtimi nei dabar);
- j. Vėjo energija (platesne apimtimi nei dabar);
- k. Galios elektronika;
- l. Pažangiaisiais tinklais / pažangiosiomis matavimo sistemomis / pažangiaisiais pastatais;
- m. Informacinėmis ir komunikacinėmis technologijomis;
- n. Energijos kaupimu;
- o. Energijos efektyvumu;
- p. Energetikos rinka.

Reikėtų apsvarstyti studijų programos papildymą vadybos ir ekonomikos studijų dalykais, galimai kaip pasirenkamaisiais.

2. *Programos tikslai ir numatomi studijų rezultatai*

Žinios ir jų taikymas – rezultatai ... – ... nauji matavimo metodai (3.1 priedas).

Studijų programoje suteikiamos žinios yra susijusios tik su matavimais biosistemų inžinerijos srityje, bet ne su naujais matavimo metodais, kaip būtų galima manyti remiantis numatomu studijų rezultatu, įskaitant ir kitas inžinerijos sritis.

Specialieji gebėjimai – gebėjimai kurti ir tobulinti technologijas ... – studijų dalykai (3.1 priedas).

Studijų dalykų sąraše nėra fotelektros įrangos, kuri yra įtraukta į programos turinį, nors iš esmės ji turėtų būti nurodyta.

Asmeniniai gebėjimai (3.1 priedas).

(iii) Vadovauti darbo grupei ..., planuoti asmenines ir grupines darbo užduotis.

(iv) Gebėjimas dirbti savarankiškai ... bendrauti ir efektyviai dirbti ... tarptautiniu lygmeniu.

Ne visos mokymo formos padeda užtikrinti, kad minėtieji studijų rezultatai bus pasiekti ta pačia apimtimi. Reikėtų aiškiai nurodyti tuos studijų dalykus, kurie labiausiai prisideda prie numatomų studijų rezultatų pasiekimo.

3. *Programos sandara*

Šiuo metu dėstomų studijų dalykų turinį reikėtų išplėsti ir (arba) papildyti programą naujais dalykais (žr. 1 rekomendaciją).

Reikėtų įtraukti į programą naujausias modeliavimo priemones, pvz., *Matlab-Simulink* ir *LabVIEW* (susitikime su ekspertų grupe dalyvavę studentai nebuvo susipažinę su šiomis simuliacinėmis priemonėmis).

Ekspertų grupė rekomenduoja atidžiai išnagrinėti studijų dalykų turinį, kad būtų išvengta perteklinių pasikartojimų.

4. *Personalas*

Daugelis šios studijų programos dėstytojų aktyviai vykdo mokslinius tyrimus bioenergetikos, aplinkos ir mechanikos inžinerijos, žymiai mažiau – atsinaujinančių energijos šaltinių srityje. Vertinimo metu buvo nustatyti keli atvejai, kai profesorių mokslinė veikla nesutapo su jų dėstomais studijų dalykais. Akivaizdu, kad tai turi įtakos jų dėstymui. Visų pirma, tai turi didelės įtakos atsinaujinančių energijos šaltinių sričiai. Rekomenduojama užtikrinti, kad programos akademinis personalas būtų ugdomas ir skatinamas būtent su atsinaujinančia energetika susijusiose srityse. Kadangi tam reikia laiko, pereinamuoju laikotarpiu turėtų būti kviečiami kitų universitetų / mokslinių tyrimų institutų (įskaitant užsienio) dėstytojai, taip pat lektoriai iš pramonės sektoriaus.

Šios studijų programos dėstytojų anglų kalbos žinios gana menkos. Dėstytojai turėtų būti skatinami tobulinti anglų kalbą.

Kartu ekspertų grupė pastebėjo, kad penki antrosios pakopos studijų programos dėstytojai teigia mokantys vokiečių kalbą (33 proc.) ir vienas – prancūzų kalbą (7 proc.).

5. *Materialieji ištekliai*

Būtina toliau tobulinti mokslinių tyrimų laboratorijas, ypač susijusias su automatika, stebėseną, galios elektronika, elektriniais mechanizmais ir elektros inžinerija.

Norint plėtoti šią sritį, tiek, kiek tai yra būtina antrosios pakopos studijų programai, yra būtinas priėjimas prie *IEEE Explorer* duomenų bazės.

6. *Studijų eiga ir jos vertinimas*

Veiksmingiau didinti studentų apsilankymų užsienio aukštosiose mokyklose skaičių. Tas pats taikytina ir dėstytojams. Tarptautiniai dėstytojų mainai visada yra gera prielaida studentų mainams stiprinti.

Dėstyti paskaitas užsienio kalbomis. Suteikti studentams galimybes gerinti užsienio kalbos mokėjimą.

Studentų skaičius programoje yra mažas, artimas minimaliems studijų vykdymo reikalavimams. Neaišku, kokių priemonių universitetas imasi, kad į šią studijų programą pritrauktų daugiau studentų.

7. *Programos vadyba*

Studentų atliekamas dėstytojų veiklos vertinimas kelia abejonių. Studentai negauna grįžtamojo ryšio apie atlikto vertinimo rezultatus.

8. Ekspertų grupė rekomenduoja tęsti veiksmus, kuriais siekiama sėkmingai įgyvendinti ankstesnio išorinio vertinimo (2012 m.) rekomendacijas:

- a. Imtis efektyvesnių veiksmų siekiant padidinti atvykstanąjį ir išvykstanąjį studentų bei dėstytojų judumą. Ši rekomendacija nėra sėkmingai įgyvendinta.
- b. Modernizuoti studijų metodus, įtraukiant probleminio mokymosi elementus. Ši rekomendacija nebuvo įgyvendinta visa apimtimi.
- c. Įdiegti naują studijų dalykų vertinimo sistemą – šiuo metu taikomą tradicinį suminį vertinimą pakeisti formuojamuoju vertinimu. Trūksta informacijos apie šios rekomendacijos įgyvendinimą.

<...>

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)