



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

ALEKSANDRO STULGINSKIO UNIVERSITETO
**STUDIJŲ PROGRAMOS *ATSINAUJINANČIŲ*
*ENERGIJOS IŠTEKLIŲ INŽINERIJA***
(612J17001)

VERTINIMO IŠVADOS

EVALUATION REPORT
OF *RENEWABLE ENERGY RESOURCES ENGINEERING*
(612J17001)

STUDY PROGRAMME

at ALEKSANDRAS STULGINSKIS UNIVERSITY

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Išvados parengtos anglų kalba

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Atsinaujinančių energijos išteklių inžinerija
Valstybinis kodas	612J17001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Gamtos išteklių technologijos
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (4 m), iššęstinė (6m)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Biomassės inžinerijos bakalauras
Studijų programos įregistravimo data	2011-06-01

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Renewable Energy Resources Engineering
State code	612J17001
Study area	Technology studies
Study field	Minerals technology
Kind of the study programme	University studies
Study cycle	First
Study mode (length in years)	Full time (4 years), part time (6 years)
Volume of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Biomass Engineering

Date of registration of the study programme 01 June 2011

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I. INTRODUCTION

Aleksandras Stulginskis University (hereinafter referred to as ASU) is a State establishment of higher education and studies having a unique mission, which makes it distinctive among other establishments of the kind. The Higher Education Institution (HEI) mission is directly related to agricultural and rural development as well as to the sustainable use of natural resources. The university has old traditions and strong positions in university studies related to agriculture and rural development of such areas as biomedicine, technologies, social sciences and economics in particular. Its predecessor, the Academy of Agriculture, was established in 1924 in Dotnuva. In 1945, it moved to Kaunas and later, in 1964, to the specially constructed campus on the outskirts of Kaunas. After the restoration of Lithuania's independence, the management system of the Academy of Agriculture was democratised, a modern system of three cycles of studies was created and a unified system of science and studies was developed offering market driven study programmes. In 1996 the Academy of Agriculture was granted university status and its official title was changed to Lithuanian University of Agriculture (LUA). The university was renamed to Aleksandras Stulginskis University (ASU) on 16 August 2011. Aleksandras Stulginskis (1885-1969) was the first Minister of Agriculture in 1919 and Second President of Lithuanian Republic (1920-1926). Presently, it has 378 teachers and research staff as well as almost 7 000 of students. The self-assessment group was formed in 2013 and considered all relevant data from the last three years. It was coordinated by Assoc. Prof. Dr. Kęstutis Navickas, Head of the Institute of Energy and Biotechnology Engineering, who was supported by four staff and one student representative. There was external representation in the group from UAB "Bionovus". The self-evaluation report (SER) was completed in September 2013.

The external evaluation by a team of international experts (ET) took place in May 2014. The site-visit to the University was on Tuesday, the 13 of May. The team leader was Professor Peteris Rivža (Latvia) and the other members were Professor Csaba Forgács (Hungary), Docent Roland Sigvald (Sweden), Gediminas Viškelis and Vytautas Jouzas Petkus. A meeting was held after the site visit to finalise the judgements and the report.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

Production of renewable energy is topical in many countries of EU, including Lithuania. Currently there is a lack of specialists in this field and the particular study programme is unique in Lithuania. There is no standard of the qualification in the field of Minerals Technology in Lithuania, neither are specialists in this field trained in other universities; therefore the design and development of the study programme was based on the opinion of business representatives and experience of foreign universities (Hohenheim (Germany), BOKU (Austria)). The aforesaid universities focus on the studies of biomass growth, preparation, logistics and energy conversion technologies. It was told to ET during the site visit that this study programme is also supported and required from the industry.

Aleksandras Stulginskis University has been working in the field of renewable energy resources gained from biomass production in 1994, when it began implementing scientific research. The first steps to train specialists of this field were taken in 2006, after the implementation of the project *Development of Science and Studies of Biomass Resources Management and Conversion Technologies* following SPD Measure 2.5, project code BPD2004-ESF-2.5.0-03-05/0048. Conditions to specialize in the field of bioenergetics were created for the second-cycle students of the study programme *Agricultural Mechanical Engineering*.

The restructuring of the study programme started in 2010. The project *Study Programme Development and Teacher Competences for First and Second Study Cycles in Agriculture* (ŽŪ-SPDKP), project code No. VP1-2.2-ŠMM-09-V-01-002. One of the activities of the project presupposed preparation of the first cycle study programme *Renewable Energy Resources Engineering* (the earlier title was *Biomass Engineering*, see Section 2.5.1.) and the second cycle study programme *Biomass Engineering*. The programmes were registered and accredited for a three-year period in 2011 (Order No. 1-01-72 of the Director of SKVC of 01 June 2011). The first admission of students to the aforesaid study programmes occurred the same year (SER, page 5).

The main goal of the study programme is to train a university Bachelor of a broad profile for the employment in the field of renewable energy resources, who is able to apply knowledge and abilities, supported by theoretical understanding and critical thinking, to independently identify, analyze and manage problems in own professional activity related to biomass production and conversion. The aim and the sub-aims are well defined, publicly available in the university website (<http://www.asu.lt/pradzia/en/41748>) and they are in correspondence with the overall aims of the University.

Learning outcomes of the study programme *Renewable Energy Resources Engineering* are also well defined and the curriculum corresponds to the intended learning outcomes. The programme outcomes are detailed in the three sub-goals and objectives of the study programme, conform to programme aims and are implemented through the study subjects. Learning outcomes related to the first sub-goal include the development of a world outlook based on humanistic principles, critical thinking and ability to communicate in Lithuanian and a foreign language. The achievement of the learning outcomes related to the second sub-goal is realized through the study subjects, which form generic competences to solve technological, engineering and technical issues in the fields of biomass production, processing and conversion. The achievement of the learning outcomes of the third sub-goal is realized through the study subjects, which focus on the application of knowledge and abilities for professional activity in the field of renewable energy production from biomass. Learning outcomes concretizing all the three sub-goal do not duplicate each other (SER, page 9.).

In the same time there are no concrete subjects (SER, page 11-12, Table 3) on social and personal abilities development. Intended outcomes of the study programme and the intended qualification of students are target specific, and regards a niche labor market segments, therefore the graduates of this programme hopefully will face a relatively smaller competition from the graduates of other study programs of Aleksandras Stulginskis University and other education institutions in Lithuania.

Overall, the programme aims and learning outcomes are consistent with the university type and bachelor level of studies and the level of qualifications offered by the study programme and they are compatible with each other. Requirements outlined in the Study Programme for awarding the qualification conform to *General Regulation on Technology Science (Engineering) Studies* (Order No. ISAK-734 of the Minister of Education and Science of RL of 29 April 2005); documents of the Bologna process, intending to incorporate national systems of higher education into European Higher Education Area: Dublin Descriptors, Bergen, London and Leuven Communiqués, which emphasize significance of training a student for labour market, further development and self-development of abilities and active citizenship, as well as outline qualification requirements and learning outcomes for the graduates of the first-cycle (Bachelor) study programmes; the mission of Aleksandras Stulginskis University to create and disseminate scientific knowledge, sincerely strive for safe and healthy food and full-fledged environment to every citizen of Lithuania (SER, page 12).

The intended outcomes of the study programme conform to Level 6 of European Qualifications Framework: the graduates will be prepared for second cycle studies and/or professional activity,

which necessitate for the latest technological-engineering knowledge, critical understanding and ability to solve complicated and unexpected problems related to renewable energy resources produced from biomass and to implement correspondent activity, to undertake leading positions and implement projects, as well as accept responsibility for own decisions and outcomes (SER, page 13).

2. Curriculum design

The study programme corresponds to the General requirements of the first degree study programmes (Order No. V-501 of Minister of Education and Science of the Republic of Lithuania of 09 April 2010).

The volume of the first cycle study programme *Renewable Energy Resources Engineering* is 240 ECTS credits, i.e. 6400 hours. The duration of studies is 4 years, or 8 semesters. Each semester comprises 30 credits; not more than 7 study subjects are studied in a semester. The duration of part-time studies is 6 years or 12 semesters; 3-5 study subjects are covered per semester 18-22 credits each (SER, page 13). The study subjects are therefore spread evenly within the programme and they are not repetitive, this was also confirmed by the students and graduates.

The studies of the first-cycle study programme *Renewable Energy Resources Engineering* are implemented in one flow by providing students with knowledge of general engineering and knowledge of renewable resources, growth of plant biomass and its preparation for processing, as well as conversion technologies. During the fourth year of studies (fifth in case of part-time studies), students are given opportunity to partially deepen their knowledge in one of the following fields of conversion: biogas, biofuels, or biofuels and biomaterials (bio-oils and biolubricants). The students can select the field according to their interests, and alongside with lectures arranged in flows, study one of the combinations of elective study subjects (each of which consists of three subjects, 16 cr. in total). The student is supposed to select the combination of alternatively elective study subjects at the end of Semester 6 prior to Engineering-Design Practice. The modules are structured within the programme to enable the students to progress logically through their years of study. ET thinks this is a deliberate and consistent approach taken by the programme administrators.

The themes of study subjects are in line with the outcomes of the study programme, and suffice for the achievement of intended outcomes. Their aims, contents and outcomes, as well as links with the outcomes of the study programme, teaching and learning methods as well as criteria, methods and structure of the assessment of students' achievements are presented in study subject descriptions. The compatibility of the themes of study subjects with the outcomes of the study programme and methods of their achievement are evaluated by the reviewers of study subjects

and Study Programme Committee. Detailed contents of study subjects are described in each subject's curricula. The University implements the adjustment of study subjects for distant learning in the Moodle system. It is extensively applied in part-time studies: first-cycle part-time studies of the first two years are carried out at the University through distant learning.

When it comes to the latest achievements in science or technologies involving into the content of the study programme it should be mentioned that study programme *Renewable Energy Resources Engineering* curricula involves subjects for understanding about wind power plants, photovoltaic panels, hydro-power plants and etc. programme itself states about renewable energy and they have laboratories with this equipment too.

The computer classroom is equipped with computer and software equipment: MathCAD, Solid Edge, Solid Works, AutoCAD, ANSYS, Autodesk Inventor Professional, CorelDRAW, which are used to deliver the study subjects of special studies (SER, page 25). The students explained to ET they would like much more training on specialized agriculture business software. ET agrees with students. It's obvious that in these days IT solutions is an inevitable thing in modern engineering and business when solutions have to be done fast and precisely, based on various scenarios simulation. Students' ability to work with the most common or popular software used by the social partners would increase graduates' opportunities to find a job too.

ET stresses out the students have such subjects as Basics economics and finances, Fundamentals of Management and Law. The scope of the programme is not sufficient enough for the achievement of all learning outcomes - it could be improved when it comes to Management, Economy, Finances, Specialized IT and internationalization (a lack of students' English knowledge was obvious at the meetings with ET). The need of it was obviously confirmed by the social partners and it was confirmed by the students too. The students mentioned some faults in the teaching of separate courses, for example, students stated to ET they want to get a deeper understanding and knowledge in Mathematics which is currently not sufficient for other subjects (Engineering mechanics, Machine mechanics, Electrotechnics, Electronics and control engineering systems etc.) where math is applied. Students also asked some improvements of the content of Mathematics, Measurements of biosystems and fitoenergetics. All these mentioned drawbacks doesn't cause serious doubts about the curriculum or the content but ET thinks programme administrators should consider them and do their best to follow recommendations for improvements.

Overall the subjects and learning modules related to technical and renewable energy issues are appropriate for the achievement of intended learning outcomes.

3. Staff

The qualification of teaching staff is well above legal requirements, more than 50 % of subjects are taught by scientists and practical experience of teachers with few exceptions is much above three years. The staff by professional standard is evidently strong.

The teaching staff is well educated and can cover all professional fields of the study programme. Their knowledge, skills and competences are adequate to reach learning outcomes. The composition of teaching staff from professional point of view is strong with a total staff of 42 teachers. 8 professors (increased by one in the analyzed period) are responsible of some 22 % of teaching and supervising 30 % of laboratory work. The decisive part of teaching and lab work is made by 21 associate professors (reduced by two over the evaluated period). Besides them, 12 lecturers and one assistant lecturer are involved in teaching. Concerning the staff no significant turnover has been during the last 5 year period. Number of professors increased by 1 and that of associate professors decreased by 2 reflecting that the teacher staff is rather stable and can assure adequate provision of the programme. ET thinks that 22 PhD students provide a good potential for improving staff in the future. To sum up, staff has a rich long term experience of teaching which is really commendable. As most of the teachers are having sufficient professional skills there has not been need to organize additional courses preparing them before launching the programme. Teachers have the required professional and pedagogical competences. Some study abroad programme helped to have additional experience from the international arena. Staff has carried out a valuable research work helping to increase the quality level of teaching of related subjects. Publication list of staff based on their research is significant and makes it possible to convey the latest scientific results in their teaching and laboratory work. Teachers are obliged and, at the same time, they confirmed being encouraged to improve their professional knowledge and competencies, so university creates conditions for the professional development. They are also involved in various research projects initiated by the social partners what is also commendable. This gives the teachers and students involved in those projects to get scientific and research practice and have continuously knowledge about employees' current needs and future directions.

One of the fields that appeared a bit weak and could be improved is verbal English skills of some teachers that are currently are not sufficient to meet the goal of internationalization of the faculty (for example to give lectures professionally for foreign students).

4. Facilities and learning resources

There were good and adequate facilities and learning resources (classrooms, laboratories and training rooms) which are used by the student of this study programme. Facilities concerning field research, preparation for processing etc. are modern. Practical classes are arranged often in smaller rooms. Most of the classrooms and laboratories are equipped with specialized video facilities and equipment, internet access, computerized workplaces for teachers, stands, models, and other visual aids. Teachers can use portable computers and projectors in other classrooms. They are supplied by the Faculty Institutes and Dean's Office (3 sets). Large study halls are meant for large flows of students combined of several study programmes studying the same subjects. The first and second-year students of the study programme *Renewable Energy Resources Engineering* have lectures of Mathematics, Physics, Chemistry, Fundamentals of Agronomy, Fundamentals of Forestry, etc. in other divisions of the University. Computerized workplaces are established in the Centre of Mathematics, Physics and Information Technologies. The following programmes are used for teaching: MS Word, MS Excel, MS PowerPoint, MS Access. Also, several computerized classrooms are established to work with personal computers. The computer classroom is equipped with computer and software equipment: MathCAD, Solid Edge, Solid Works, AutoCAD, ANSYS, Autodesk Inventor Professional, CorelDRAW, which are used to deliver the study subjects of special studies.

Every room in University's hostel is equipped with internet access, whereas wireless internet access is available in the library and other working or meeting places of students. Students could connect to database from their homes during free time and not only from library. As ET saw the teaching materials (textbooks, periodicals etc.), it was sufficient in the amount or range of the books, but some textbooks were rather old and could be updated. The number of new books could be increased, especially books and other sources of literature in English, thus strengthening the internationalization component of the study programme.

In general, the students were satisfied with arrangements for practice, but it was mentioned to ET it could be improved and most students wanted more practice. They wanted to improve contacts between students and companies. They told to ET they made some study tours to companies and wanted more activities of this kind, but companies were not so interested. ET would like to suggest strengthening the relationships with social partners and integrating more practical skills via study tours in the study programme, linking collaborating with real enterprises in the sector etc.

Overall, the Faculty has sufficient facilities, which ET saw during the site visit, and which enable to conduct laboratory work and research in the fields of renewable energy resources and biomass

production, preparation for processing and conversion. It is also important to note and to commend university's efforts, that two large-scale EU projects were recently implemented to modernize the study infrastructure (*Modernisation of LŽŪU Studies Infrastructure, Basic Equipment and Information Infrastructure for the Improvement of the Quality of Studies (365 thousand EUR)*, *The integrated Land, Forest, Water and Food Industry Science, Studies and Business Centre (Valley) project "Nemunas"* (23 mln EUR)).

5. Study process and student assessment

Admission to the first cycle undergraduate full-time and part-time study programme *Renewable Energy resources Engineering* is organized following the admission procedure approved by Association of Lithuanian Higher Education Institutions for joint admission organization (LAMA BPO); Not lower than secondary education (or equal to it) is needed for admission to first cycle full-time and part-time studies. The admission is organized on the competitive basis drawing up a competitive list according to the sum of competition points. The sum of competition points consists of the marks of maturity examination of three study subjects (Mathematics, Lithuanian and Chemistry) and the annual mark of the fourth study subject (Foreign language) multiplied by their weighted coefficients. Additional criteria (special requirements) and additional points are not outlined for the admission to the study programme. The admission conditions are publicized on ASU website.

In the period of assessment, only admission to full-time studies of *Renewable Energy Resources Engineering* was organized; admission to part-time studies was not announced. In the period of 2011-2013, 276 school leavers submitted applications to the study programme; 27 of them were admitted – 11 (41%) to state-financed places, and 16 (59%) to state non-financed places (one student was admitted to the second year for the academic year 2013-2014).

The dissemination of information on the study programme occurs on the University website ("*For the Entrants*") and contains description of the study programme, rules of admission, etc. Sufficient information is also provided in specialized publications ("*Admission to Institutions of Higher Education in Lithuania*"), special leaflets, as well as AIKOS database.

The academic year consists of 2 semesters: autumn and spring. The lectures of one subject usually last for 2-3 hours, whereas the duration of practical classes, seminars and laboratory work is 2-4 hours. The weekly load of classroom work is approximately 30 hours. Advanced, disabled and working students are provided with the possibilities to study according to an individual schedule at the University. Examinations are taken during the examination session following the schedule of examinations confirmed by the Dean. ET could agree that study process ensures adequate provision of the programme.

Students' involvement in international exchange programmes is relatively small but they have possibilities to participate in mobility programmes. 7 first-cycle students and 5 second-cycle students participated in ERASMUS exchange programme in 2011-2012. In the present academic year three students from the Faculty of Agricultural Engineering intend to take the opportunity. Students' involvement in international exchange programmes is relatively small, after the discussions with the students ET concludes that it is mainly due to insufficient foreign language skills and this should be solved by the programme's managers.

Furthermore, the students of the ASU have good possibilities to participate in artistic and intellectual activity. The yearly publication ("*For the First Year Student of ASU*") helps the students understand the system and order of the University and reveals student rights, responsibilities and opportunities. It provides with useful information about the University, students' self-government, organization of studies, possibilities of studies and employment in foreign countries as well as student support. The students can get acquainted with the study programme, their syllabi, descriptions of study subjects and main regulatory documents on the University website. Every student is registered within an electronic diary, where s/he finds information on his/her study outcomes, achievements, etc. ET thinks it is a good supportive system to the students. The following system of social support to students is applied in the University: incentive scholarships for learning outcomes, one-off scholarships granted from the University and Faculty scholarship funds, social scholarships (granted by the Fund of State Studies), memorial scholarships or the ones awarded by ASU sponsors as well as allowances for orphans or disabled students. During the meeting with the students ET learned that they are happy with HEI's academic and social support.

The studies of every study subject are completed with an examination, whereas the study programme is completed with the assessment of a student's competence demonstrated in Undergraduate Thesis. The form of final assignment is its presentation at the Institute and public defense at the meeting of Assessment Committee for Undergraduate Theses and Examinations. Since the programme started in 2011 there are no graduates yet and thus no final Thesis could be reviewed by ET. Still ET would like to add that during the discussion with the students and social partners it was heard that there is a need of more specialized software to improve the students skills and knowledge also better prepare for a job market.

6. Programme management

Decision making process of project management is clearly described indicating the tasks of all involved bodies and staff. Besides teachers, the Academic Council, the Dean, vice-deans and key administrators are responsible for managing the programme. The coordination of the study

programme is in the hand of the Study Programme Committee. Reviewing outcomes, developing competencies, reviewing the content of the study programme, are made by Study Programme Committee. As Experts were assured during the site visit, information on implementation are collected on a regular basis and used for evaluating the experience of teaching for all study subjects on a semester basis. Channels of collecting the necessary data for analysis have been described indicating where the information is to be obtained from. Main sources of information are: students, through students' representative, teachers having teaching experience, and social partners. Any feedback or notes related to quality of the content or method of teaching of any subjects gives a basis for evaluation by the Programme Study Committee and are discussed in a formalized way where the Dean of the faculty as well as the Faculty Council are also involved but final decision is made by the Institution meeting and Study Program Committee.

Career Centre has strong focus on arranging Job fair and finding placements for students, however, providing career counseling for students would increase the level of employability of future graduates. Every year University representatives participate in Students' Fair and Open Days to Studies.

A method of using sociological surveys was implemented at the University involving prospective employers, teachers, students and graduates to get feedback and based on them to improving the quality of the programme and the skills of students after graduation. One of the social partners had been involved in evaluating the programme but it was clearly underlined by other social partners that they would like to be more involved in developing and evaluating the study programme. It is a message for the faculty to make step to this direction and ask social partners for a more active involvement in study program development. The internal quality assessment is focusing on the quality of competences students have to have after finishing their studies at subject and programme level. The work of programme quality assessment and improvement is clearly regulated; the system is transparent and effective. Besides partial assessment, before external assessment and accreditation there is a systematic assessment and self-assessment conducted according to the methodology developed by Centre for Quality Assessment in HE (SKVC). The work of programme quality assessment and improvement is clear where partial assessments based on feedback from different groups as students, teachers, administrators and carried out annually.

III. RECOMMENDATIONS

1. The ET would like to suggest for improving future programme quality to increase the number of new books and other sources of literature in English in the library, it would be also suggestible to regularly update study course literature.
2. For increasing internationalisation, it is necessary to improve the foreign language skills, invite more visiting lectures and implement other measures to improve language skills of the students and faculty staff members.
3. The number of students is low therefore it would be suggestible to work actively towards attracting more students to the programme.
4. It would be advisable to use specialized IT software in the study process more extensively and include the financial and economic subjects in the study programme.
5. ET would like to suggest continuing to develop a joint program with international partners and to attract more exchange students from abroad.

IV. SUMMARY

In conclusion, the aims and learning outcomes of the study programme *Renewable Energy Resources Engineering* are well defined and the curriculum corresponds to the intended learning outcomes. Intended outcomes of the study programme and the intended qualification of students are target specific, and regards a niche labor market segments, therefore the graduates of this program face a relatively small competition from the graduates of other study programs of Aleksandras Stulginskis University and other education institutions in Lithuania. Overall, the programme aims and learning outcomes are consistent with the type and level of studies and the level of qualifications offered by the study programme and they are compatible with each other. The subjects and learning modules related to technical and renewable energy issues are appropriate for the achievement of intended learning outcomes but both social partners and students stressed the need to use specialized IT software in the study process more extensively and include the financial and economic subjects in the study programme.

The study programme has academically strong teacher group having research work supporting to increase the quality of teaching by using latest research results in teaching, but the English skills could be improved.

Overall, the Faculty has sufficient facilities, which enable to conduct laboratory work and research in the fields of renewable energy resources and biomass production, preparation for processing and conversion. Two large-scale EU projects were recently implemented to modernize the study infrastructure. Teaching materials (textbooks, periodicals etc.) were sufficient, but some textbooks were rather old and could be updated, but in general students and teachers were satisfied with facilities (classrooms, laboratories and training rooms, library, electronic databases etc).

Study admission, study process and evaluation of students is organized efficient and transparent. Equal rights are assured to all students, several grant mechanisms are available as well as social support system is developed for supporting socially vulnerable groups.

The process of programme management has been described during the site visit, also in SER, work and tasks allocated among different bodies (Committees etc.) and people involved. However, more efforts are needed to take into account the needs of social partners.

V. GENERAL ASSESSMENT

The study programme Renewable Energy Resources Engineering (state code – 612J17001) at ALEKSANDRAS STULGINSKIS UNIVERSITY is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Staff	4
4.	Material resources	3
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	19

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

Grupēs vadovas:

Prof. Peteris Rivža

Team leader:

Grupēs nariai:

Prof. habil. dr. Csaba Forgács

Team members:

Doc. Dr. Roland Sigvald

Gediminas Viškelis

Vytautas Juozas Petkus

**ALEKSANDRO STULGINSKIO UNIVERSITETO PIRMOSIOS PAKOPOS STUDIJŲ
PROGRAMOS ATSINAUJINANČIŲ ENERGIJOS IŠTEKLIŲ INŽINERIJA
(VALSTYBINIS KODAS – 612J17001) 2014-08-13 EKSPERTINIO VERTINIMO
IŠVADŲ NR. SV4-441 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Aleksandro Stulginskio universiteto studijų programa *Atsinaujinančių energijos išteklių inžinerija* (valstybinis kodas – 612J17001) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	4
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	19

* 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. SANTRAUKA

Studijų programos *Atsinaujinančių energijos išteklių inžinerija* tikslai ir studijų rezultatai yra gerai apibrėžti, studijų turinys atitinka numatomus studijų rezultatus. Studijų programos numatomi rezultatai ir numatoma studentų kvalifikacija yra tikslinga ir konkreti niša darbo rinkoje, todėl šią programą baigę absolventai susiduria su santykinai maža kitas Aleksandro Stulginskio universiteto ir kitų švietimo įstaigų studijų programas Lietuvoje baigusių absolventų konkurencija. Apskritai, programos tikslai ir studijų rezultatai atitinka studijų rūšį ir pakopą, studijų programos siūlomų kvalifikacijų lygį, jos taip pat dera tarpusavyje. Studijų dalykai ir mokymosi moduliai, susiję su techniniais ir atsinaujinančios energijos klausimais, yra pakankami numatomiems studijų rezultatams pasiekti, tačiau socialiniai partneriai ir studentai pabrėžė, kad būtina plačiau naudoti specializuotą programinę įrangą studijų procese ir į studijų programą įtraukti finansų ir ekonomikos dalykus.

Studijų programą dėsto akademiškai stipri dėstytojų komanda, turinti mokslinių tyrimų patirties, ji padeda gerinti mokymo kokybę, nes dėstydama naudoja naujausius mokslinių tyrimų rezultatus, tačiau reikėtų tobulinti anglų kalbos įgūdžius.

Apskritai, fakulteto materialioji bazė yra pakankama, leidžianti atlikti laboratorinius darbus ir mokslinius tyrimus atsinaujinančių energijos išteklių bei biomasės gamybos, paruošimo perdirbimui ir perdirbimo srityse. Neseniai buvo įgyvendinti du dideli ES projektai, skirti studijų infrastruktūrai modernizuoti. Mokymo medžiaga (vadovėliai, periodiniai leidiniai ir t. t.) yra pakankama, tačiau kai kurie vadovėliai yra gana seni ir juos reikėtų atnaujinti, bet apskritai studentai ir dėstytojai materialiąja baze yra patenkinti (auditorijomis, laboratorijomis ir užsiėmimų patalpomis, biblioteka, elektroninių duomenų bazėmis ir t. t.).

Priėmimas į studijas, studijų procesas ir studentų vertinimas yra gerai organizuotas ir skaidrus. Visiems studentams garantuojamos lygios teisės, yra keletas stipendijų mechanizmų, sukurta socialinės paramos sistema socialiai pažeidžiamoms grupėms remti.

Programos vadybos procesas buvo apibūdintas vizito metu ir savianalizės suvestinėje, taip pat pateikta informacija apie darbo ir užduočių paskirstymą įvairiems organams (komitetams ir t. t.) ir asmenų dalyvavimą. Tačiau reikia dėti daugiau pastangų, siekiant atsižvelgti į socialinių partnerių poreikius.

<...>

III. REKOMENDACIJOS

1. Siekiant pagerinti programos kokybę ateityje, ekspertai rekomenduoja bibliotekai įsigyti daugiau naujų knygų ir kitos literatūros anglų kalba, taip pat rekomenduojama reguliariai atnaujinti studijų dalykų literatūrą.
2. Siekiant padidinti tarptautiškumą, reikia gerinti užsienio kalbos mokėjimo įgūdžius, pasikviesti kviestinių lektorių ir įgyvendinti kitas priemones, kurios padėtų gerinti studentų ir fakulteto personalo kalbos įgūdžius.
3. Studentų skaičius yra mažas, todėl rekomenduojama imtis aktyvių veiksmų siekiant pritraukti daugiau studentų rinktis šią programą.
4. Patartina plačiau naudoti specializuotą programinę įrangą studijų procese ir į studijų programą įtraukti finansų ir ekonomikos dalykus.

5. Ekspertai rekomenduoja toliau plėtoti bendrą programą su tarptautiniais partneriais ir pritraukti daugiau studentų iš užsienio pagal mainų programas.

<...>

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)