



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

ALEKSANDRO STULGINSKIO UNIVERSITETO

**STUDIJŲ PROGRAMOS *BIOMASĖS INŽINERIJA*  
(621J17001)**

**VERTINIMO IŠVADOS**

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**EVALUATION REPORT  
OF *BIOMASS ENGINEERING* (621J17001)  
STUDY PROGRAMME  
at ALEKSANDRAS STULGINSKIS UNIVERSITY**

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Išvados parengtos anglų kalba

Report language – English

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## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

|  |                                 |
|--|---------------------------------|
| Studijų programos pavadinimas                        | <b>Biomasės inžinerija</b>      |
| Valstybinis kodas                                    | 621J17001                       |
| Studijų sritis                                       | Technologijos mokslai           |
| Studijų kryptis                                      | Gamtos išteklių technologijos   |
| Studijų programos rūšis                              | Universitetinės studijos        |
| Studijų pakopa                                       | Antroji                         |
| Studijų forma (trukmė metais)                        | Nuolatinė (2 m), iššęstinė (3m) |
| Studijų programos apimtis kreditais                  | 120 ECTS                        |
| Suteikiamas laipsnis ir (ar) profesinė kvalifikacija | Biomasės inžinerijos magistras  |
| Studijų programos įregistravimo data                 | 2011-06-01                      |

## INFORMATION ON EVALUATED STUDY PROGRAMME

|   |  |
|---|--|
| Title of the study programme                        | <b>Biomass Engineering</b>               |
| State code  | 621J17001                                |
| Study area  | Technology studies                       |
| Study field   | Minerals technology                      |
| Kind of the study programme                         | University studies                       |
| Study cycle   | Second                                   |
| Study mode (length in years)                        | Full time (2 years), part time (3 years) |
| Volume of the study programme in credits            | 120 ECTS                                 |
| Degree and (or) professional qualifications awarded | Master of Biomass Engineering            |
| Date of registration of the study programme         | 01 June 2011                             |

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The Centre for Quality Assessment in Higher Education

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## 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 University 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 judgments and the Report.

## II. PROGRAMME ANALYSIS

### *1. Programme aims and learning outcomes*

Considering the current focus on the use of renewable energy resources and sustainable production of energy, the study programme Biomass Engineering is preparing specialists that are demanded by the industry. In 2007-2010, the EU funded Project *Education and Research in Biosystems Engineering in Europe* (ERABEE) was implemented; as a result, a study about the demand of training second and third cycle specialists for the newly developing market of bioenergy and bioresources was published. 34 European universities participated in the Project, including ASU. The study emphasized that the field of biomaterials and bioenergy is modern and multi-functional; it necessitates for knowledge and abilities, which are not developed in traditional university study programmes of agricultural engineering; therefore, there is a growing demand for preparation and implementation of new study programmes in accordance with the latest universities' research achievements in science.

There is no standard of the qualification in the field of Nature Resources Technologies 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 (SER, 7).

The study programme is unique in Lithuania, therefore the graduates do not have to compete with the other graduates of the ASU in the labour market.

The **aim** of the study programme Biomass Engineering is to expand qualification acquired in the first study cycle, to train creatively and critically thinking graduates, who are able to apply the acquired knowledge and abilities, which are essential for the engineering-technological and/or scientific activity in the global market as well as the application of advanced technologies in the field of biomass engineering; who are ready to self-dependently create and improve production and conversion technologies and equipment of biomass materials, as well as to evaluate energy resources of biomass and their integration into conventional energy systems; and who are able to deliver consultations, coordinate projects of biomass engineering, implement innovations, as well as continue their studies in the third cycle (SER, 8). The aim of the programme is clear and publicly available in the University webpage (in both languages Lithuanian and English).

The programme outcomes are detailed in terms of five types of outcomes – knowledge and its application, research abilities, special abilities, social abilities, personal abilities (SER, 10). They conform to programme aims, do not duplicate each other as each of them include different

learning outcomes. For example, knowledge and its application includes learning outcomes that regards theoretical knowledge about types of biomass, etc., but research abilities includes learning outcomes that regards skills in research planning and elaboration. All these learning outcomes are implemented through the study subjects. For the compatibility of the learning outcomes of the study programme, the second cycle full-time (2 year) and part-time (3 year) 120 credits for the study programme of Biomass Engineering is implemented. ET can also conclude that programme name, learning outcomes and the content are compatible with each other.

## **2. Curriculum design**

The volume of the second cycle study programme Biomass Engineering is 120 ECTS credits, i.e. 3200 hours. The duration of studies is 2 years, or 4 semesters. Each semester comprises 30 credits; not more than 5 study subjects are studied in a semester. The duration of part-time studies is 3 years or 6 semesters; 1-4 study subjects are covered per semester 15-24 credits each. The study programme has been implemented since 2011. In 2011-2012 only admission to second cycle full-time studies of *Biomass Engineering* was organized; whereas in 2013 admission to part-time studies was also organized alongside with the admission to full-time studies (SER, 11, 12). ET agrees that the scope of the programme is sufficient to ensure learning outcomes.

The volume and structure of the study programme complies with the *General Requirements for Master Study Programmes* (Order No. V-826 of Minister of Education and Science of the Republic of Lithuania of 03 May 2010), *Descriptor of the Structure, Methods and Forms of Studies at Lithuanian University of Agriculture* (Rector's Order No. 173-kb§11 of 30 June 2009), and *Descriptor of Rearranging Study Programmes into ECTS System at Lithuanian University of Agriculture* (Rector's Order No. 92-kb of 12 April 2011) (SER, 12).

The study subjects are spread evenly, they are not repetitive, and they are consistent with the type and level of the studies, the study programme is linked with the research activities of the teaching staff, therefore it reflects the latest achievements in science and technologies in the field of biomass production and procession. The study programme is narrowly targeted to the specific theme of studies and ET thinks the scope of the programme is sufficient to achieve the intended learning outcomes. The study programme includes courses regarding renewable energies and biomass production (Renewable energy sources, Engineering of Biofuels, Biogas Engineering Systems, Life Cycle Assessment of Biomass, etc.) and also several courses with a scientific focus, that are targeted for acquainting research skills for the masters level (Mathematical Statistics and Modeling, Modeling of Biomass Engineering Systems, Methods of Environmental Impact Assessment) (SER, 11, 12). ET would like to note that students complained of their lack of knowledge in economy and finance, currently there is only one study course in management

(Management of Business Projects) included in the curriculum (SER, 12), so ET thinks it would be necessary to include more business and finance related subjects in the future. The social partners also confirmed they expect the graduates of this programme not only solve technical and engineering tasks but also be able to perform calculations on costs evaluation, return on investment, to measure efficiency improvement on new technological solutions and etc. The social partners also suggested that the graduates of this programme should have a broader knowledge on management issues in private companies, therefore subjects related to management should be strengthened. During the site visit students also emphasized that they would like much more training on specialized agriculture software at the university and software equipment: MathCAD, Solid Edge, Solid Works, AutoCAD, ANSYS, Autodesk Inventor Professional, CorelDRAW (SER, 20) are available, but from students point of view, the use of mentioned software should be increased. 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.

### ***3. Staff***

The qualification of teacher staff is well above legal requirements, and teachers are having rich pedagogical and practical experience. Their experience ranges from 4 to 45 years (~23 years on average), (SER, page 14). The teaching staff is well educated and can cover all professional fields of the study programme: 12 teachers of the study programme meet the requirements for doctoral studies (SER, page 15). ET can assure that their knowledge, skills and competences and qualifications are adequate to reach learning outcomes. As ET analyzed all curriculum vitae it can be confirmed that the research field of teachers are directly related to subjects taught. The qualification structure of teachers involved in the study programme sufficiently exceeds the established minimal requirements.

Out of 16 teachers besides 6 professors and 8 associate professors one lecturer with doctor's degree take teaching obligations meeting legal requirements. ET want to emphasize that composition of teaching staff is strong. Concerning lectures, 41 % of them are delivered by professors and 53 % by associate professors. While more than 50 % of the laboratory worked is managed by professors. Teaching experiences in average amounts to 23 years. 44 % of thesis works are supervised by professors and 56 % by associate professors (SER, page 14). There has been certain decrease in number of teachers at Faculty level while average age of teachers was slightly decreased but teaching staff turnover, in total, is able to ensure adequate provision of the

programme. As student teacher ratio (12:1) was surpassed by 1.3 times actions were taken in organizing bigger group of students in the class room in case of subjects of general education. During the site visit half of the interviewed staff (6 out of 12) was able to give courses in English. Although, it became obvious that verbal English skills of some teachers are not enough to meet the goal of internationalization of the faculty (for example to professionally give lectures for foreign students). As most of the teachers are having sufficient professional skills so there has not been a need to organize additional courses preparing them before launching the programme. 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. As ET noticed during the site visit, teachers are very obliged and, at the same time, being encouraged by the university to improve their professional knowledge and competencies. As they are actively being involved in research programmes both at national and international level, this gives the teachers and students involved in those projects to get scientific and research practice and have continuous knowledge about employees current needs and future directions. In 2012, 19 different projects were implemented, the theme areas of which are closely related to the study programme: Research of the Process of Beer Production Waste and Plant Biomass Conversion into Biogases, Innovative Practice Dissemination in the Area of Biomass Employment for Biofuel Production, Scientific Validation and Evaluation of Artichoke Biomass Growth and Recycling Technology for Energy Conversion, Dissemination of Technologies of Growing Viable Medicinal Plants and Preparing Innovative Medicinal Raw Materials Using Solar Energy, Study of the Process of Silt Anaerobic Recycling of Wastewater Treatment in Šiauliai City, Substantiation of the Technology of Plant Biomass Harvesting and Preparation for Biogas Using Dispersion, Enhancement of Energy Efficiency of Biogas Granules, Application of Butanol and Oils Improper for Food Consumption in the Biotechnological Synthesis of Biodiesel, Production of Biogases from New Types of Biomass Resources, Biofuel Extraction from Micro-Algae and others (SER, page 16). Teachers also mentioned that they have good possibility to participate in conferences etc. abroad. However, because of the lack of English language skills, not many of them had good possibilities to participate in international cooperation. It would be beneficial for both staff members and students of the study programme if visiting lecturers from abroad are invited more to give lessons in English within the study programme.

#### ***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, especially master's students. 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 second cycle graduate study programme *Biomass Engineering* is announced on ASU website ([http://www.asu.lt/noriu\\_studijuoti\\_lzuu/lt/14992](http://www.asu.lt/noriu_studijuoti_lzuu/lt/14992)). The following persons who have a Bachelor's qualification degree or Professional Bachelor's qualification degree (the latter are expected to have completed additional studies), are admitted to the study programme. The admission requirements are well founded. It is normal, that state founded places had higher admission points than students paying themselves.

The academic year consists of 2 semesters: autumn and spring; the working week consisting of five days. The schedule of the programme is approved by the Dean and is compiled for the whole semester with no changes allowed during the semester. It is announced on the Information Board and website of the Faculty (<http://www.asu.lt/if/lt/10545>). Classroom activities of one subject usually last for 2-4 hours, weekly load of classroom work varies from 14 to 30 hours (SER, page 23). Advanced, disabled and working students are provided with the possibilities to study according to an individual schedule at the University. Classroom activities of the study subjects, the contents and volume of which coincide, are scheduled for the students of several study programmes. Study subjects, which are specific to the study programme and are essential for the development of students' knowledge and abilities, are implemented separately. Students have opportunity to choose study subjects but not from many. They should choose study subjects from the ones indicated in the list of alternative study subjects. If an alternatively elective study subject is chosen by 5 or fewer students, their studies are organized in a mixed way: lectures are delivered on the principle of consulting (theoretical studies are covered individually, whereas the contact work constitutes 30% of the time allotted to lectures). ET thinks the organization of the study process is adequate and good, but some improvements could be also considered. Students asked for more lectures because in some courses there were very few lectures, partly because of little number of students.

Students' involvement in international exchange programmes is relatively small. 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 of study abroad. ET thinks students' involvement in international exchange programmes is relatively small due to insufficient foreign language skills, but more and more students seek for employment in their free time and are unwilling to leave their working places. They told to ET that university gives all possibilities for participating in ERASMUS programme but they are unwilling to go because of their personal reasons.

ET would like to commend very strongly that Master students of the study programme *Biomass Engineering* are really active in research and are strongly encouraged to participate in research and applied research activities. They have published 14 publications either alone or in co-authorship (one of the articles is published in ISI WOS journal *Agronomy Research*), and delivered 13 presentations in scientific conferences. Also, most Master students participate in the annual conference of young scientists, which is organized in the University. ET admires students' motivation to present the results of scientific research activity in scientific conferences, and they also should have at least one publication before defending Master' Degree Thesis. ET thinks that the organization of students' participation and involvement in research activities is great strength of the programme.

The descriptions of study subjects outline the outcomes of the study subject, i.e. the goal, acquired knowledge and abilities are defined clearly to all – students and staff. The assessment of students' knowledge and abilities is arranged continuously every semester by defending practical and laboratory assignments, course papers and other tasks. Students' assessment is conducted within a ten-point system (regulated by Order No. ISAK-2194 *On the Approval of Student Achievement Assessment System* of the Minister of Education and Science of 24 July 2008). A system of students' interim accounts is organized in the middle of a semester and assessed using a 0-1-2 point system. The final mark for study outcomes comprises the average for interim assessment, assessments for self-dependent and laboratory work as well as examination assessment. ET thinks that the cumulative system of assessment motivates the students to study continuously rather than during the examination session only. Continuous, interim and self-dependent work assessments are allocated 20-50% of final mark, whereas examination assessment – 50-80%. The coefficients are indicated in every study subject description. The same assessment system is applied in both full-time and part-time studies. To sum up, students had no complaints on their assessment system and all agreed it is clear and adequate.

The second cycle of university studies is accomplished with students' Master's degree Thesis. The themes of Master's Degree theses are approved by the Dean of the Faculty. ET saw the thesis and was happy with the themes selected. ET also found out about the assessment system of

the thesis: it is based on collegial assessment; The head of the Board is a representative of another institution, members are teachers of different departments of the Faculty, representatives of other institutions and social partners. The Board makes a decision on the final assessment of the quality of the thesis, student's knowledge and abilities with reference to the student's presentation, answering the questions of Board members and the reviewer's assessment. The final assessment is calculated by drawing the arithmetical average from the assessments of every Board member. Students, who fail to defend their work, are allowed to repeat the defense procedure in one year. This assessment system and procedures were also clear to the students who already finished the studies. In total, the graduates didn't complain on assessment system, they were happy with the quality of the studies as they mostly working or looking for a job in agriculture related fields.

### ***6. Programme management***

Decision making process of project management is clearly described in SER (page 28-29) 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 and coordination of the study programme are made by Study Program Committee consisting of 7 members including social partners' and students' representative. Information on implementation is 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 information is 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, ET agrees that providing career counselling for students would increase the level of employability of graduates. 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 during the site visit it was clearly underlined to ET by other social partners that they would like to be more involved in

developing and evaluating this 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 programme's 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 process of programme quality assessment and improvement is clearly regulated, the system is transparent. 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. Although, the SER underlines that employers positively evaluated the practical skills of graduates, during the visit ET learned that social partners underlined the students need more practice, and even students added they need more specialized software and more lectures even if student group is small. The recommendation from the side of the social partners was to invite them to give lectures for students and also to involve social partners more in evaluating student's final thesis.

### 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 and, suggested to regularly update the study course literature.
2. For increasing internationalization, including staff and student mobility, 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 ET recommends using specialized IT software more extensively and including more financial and economic subjects into the study programme.
4. The ET suggests strengthening the cooperation with social partners both in realization of the programme as in evaluation the students' final thesis.

#### IV. SUMMARY

The study programme is unique in Lithuania, therefore the graduates do not have to compete with the other graduates of the ASU in the labour market. The aim of the programme is clear and publicly available in the University webpage.

The curriculum of the study programme is compatible with the study programme and its learning outcomes are developed in a close link with research activities of the Faculty members and the industry representatives.

The study program has academically very strong teacher group having sufficient research work supporting to increase the quality of teaching by using latest research results in teaching but the English skills of teachers need improvement.

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 needed to 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 are organized effectively and are transparent. Equal rights are assured to all students and several grant mechanisms are available. Study process is well regulated and understandable for students and teaching staff, it is clearly described in the university internal documentation including Internal Quality Assurance of ASU. The process of programme management has been described, 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 Biomass Engineering (state code – 621J17001) 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) | 4                          |
| 6.  | Programme management (programme administration, internal quality assurance)                             | 3                          |
|     | <b>Total:</b>   | <b>20</b>                  |

\*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:

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Grupēs nariai:

Team members:

Prof. habil. dr. Csaba Forgács

Doc. Dr. Roland Sigvald

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**ALEKSANDRO STULGINSKIO UNIVERSITETO ANTROSIOS PAKOPOS STUDIJŲ PROGRAMOS *BIOMASĖS INŽINERIJA* (VALSTYBINIS KODAS – 621J17001) 2014-08-13 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-442 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Aleksandro Stulginskio universiteto studijų programa *Biomasės inžinerija* (valstybinis kodas – 621J17001) 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                   | 4                            |
| 6.       | Programos vadyba                                 | 3                            |
|          | <b>Iš viso:</b>                                  | <b>20</b>                    |

\* 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

Ši studijų programa yra vienintelė Lietuvoje, todėl absolventams nereikia konkuruoti su kitais Aleksandro Stulginskio universiteto absolventais darbo rinkoje. Programos tikslas yra aiškus ir viešai skelbiamas universiteto tinklalapyje.

Studijų programos turinys suderintas su studijų programa, jos studijų rezultatai parengti glaudžiai susiejant su fakulteto narių ir pramonės atstovų mokslinių tyrimų veikla.

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

Apskritai, fakulteto materialioji bazė yra pakankama, leidžianti atlikti laboratorinius darbus ir mokslinius tyrimus atsinaujinančių energijos išteklių ir biomasės gamybos, paruošimo perdirbimui ir perdirbimo srityse. Neseniai buvo įgyvendinti du didelės apimties 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 yra patenkinti materialiąja baze (auditorijomis, laboratorijomis ir mokymo 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. Studijų procesas yra gerai reglamentuotas, jį supranta ir studentai, ir dėstytojai, ir jis yra aiškiai aprašytas universiteto vidaus dokumentuose, tarp jų ir ASU vidinės kokybės užtikrinimo sistemoje.

Buvo apibūdintas programos vadybos procesas, darbo ir užduočių paskirstymas įvairiems organams (komitetams ir t. t.) ir asmenų dalyvavimas. Tačiau reikia dėti daugiau pastangų, siekiant atsižvelgti į socialinių partnerių poreikius.

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### 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 dalykams skirtą literatūrą.
2. Siekiant padidinti tarptautiškumą, taip pat dėstytojų ir studentų judumą, reikia gerinti užsienio kalbos mokėjimo įgūdžius, pasikviesti daugiau kviestinių lektorių ir įgyvendinti kitas priemones, kurios padėtų gerinti studentų ir fakulteto personalo kalbos įgūdžius.
3. Ekspertai rekomenduoja plačiau naudoti specializuotą programinę įrangą ir į studijų programą įtraukti daugiau finansų ir ekonomikos dalykų.
4. Ekspertai rekomenduoja stiprinti bendradarbiavimą su socialiniais partneriais tiek įgyvendinant programą, tiek vertinant studentų baigiamuosius darbus.

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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)