



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

**Aleksandro Stulginskio universiteto
ŽEMĖS ŪKIO MECHANIKOS INŽINERIJOS
PROGRAMOS (612H30002)
VERTINIMO IŠVADOS**

**EVALUATION REPORT
OF AGRICULTURAL MECHANICAL
ENGINEERING (612H30002)
STUDY PROGRAMME**
at Aleksandras Stulginskis University

Grupės vadovas:
Team leader:

Dr. Joerg Longmuss

Grupės nariai:
Team members:

prof. dr. Jukka Ahokas
prof. dr. Franco Bernelli
assoc. prof. dr. Sergey Shaposhnikov
assoc. prof. dr. Kazimieras Juzėnas
Martynas Ubartas

Išvados parengtos anglų kalba
Report language - English

Vilnius
2012

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Žemės ūkio mechanikos inžinerija</i>
Valstybinis kodas	612H30002
Studijų sritis	technologijos mokslai
Studijų kryptis	mechanikos inžinerija
Studijų programos rūšis	universitetinės studijos
Studijų pakopa	pirmoji
Studijų forma (trukmė metais)	nuolatinės (4), iššęstinės (6)
Studijų programos apimtis kreditais	240 ETCS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Mechanikos inžinerijos bakalauras
Studijų programos įregistravimo data	1997-05-16 ISAK Nr.ii565

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	<i>Agricultural Mechanical Engineering</i>
State code	612H30002
Study area	technological sciences
Study field	mechanical engineering
Kind of the study programme	university studies
Level of studies	first cycle
Study mode (length in years)	full time (4), part time (6)
Scope of the study programme in credits	240 ETCS
Degree and (or) professional qualifications awarded	bachelor of Mechanical Engineering
Date of registration of the study programme	16 May 1997, No. ISAK 565

Studijų kokybės vertinimo centras
The Centre for Quality Assessment in Higher Education

CONTENTS

I. INTRODUCTION	4
II. PROGRAMME ANALYSIS.....	5
1. Programme aims and learning outcomes.....	5
2. Curriculum design	5
3. Teaching staff.....	5
4. Facilities and learning resources.....	6
5. Study process and students' performance assessment.....	6
6. Programme management	7
III. RECOMMENDATIONS	8
IV. SUMMARY	9
V. GENERAL ASSESSMENT.....	11

I. INTRODUCTION

Aleksandras Stulginskis University is a state institution of higher education and research, which is distinguished by its mission from other Lithuanian institutions. Its mission is directly related to agricultural machine manufacturing, design and assurance of its reliability. Studies also include sparing use of natural resources and the university has a significant role in modernizing agricultural machinery. The graduates of the study programme are employed in various institutions ranging from ministries to universities, from large-scale companies to private farms.

The aim of the study programme is to develop the general expertise, fundamental knowledge and abilities in the field of mechanical engineering and related study areas, essential for the solution of sophisticated problems incurred in professional activity and/or studies as well as innovative approach to working in agriculture and related spheres.

The Agricultural Mechanical Engineering Programme has four alternative subjects: Agromechanics, Engineering Design, Machine Manufacturing and Transport.

The previous external evaluation took place in 2008. In the previous evaluation the following conclusions were given:

- *The assessors of the programme point out that: the volumes of study subjects range from 2 to 5 credits; the number of credits allotted to certain study subjects is insufficient (e.g. 1 credit is allotted to practical training). Is it relevant?*
- *Study methods are not comprehensively analysed in the material of self-assessment; The material of self-assessment should include the analysis of the sequence of study modules; Semesters of the study programme clearly exceed the volume of 20 credits (19-23 credits) because the volume of the study programme is 170 credits, whereas the study programme lasts 4 years; hours allotted to laboratory works/practical classes should be indicated more precisely.*
 - *The assessment group of the study programme point out that:*
 - *the main goal is more suitable for the second cycle of studies;*
 - *it is master degree students, not bachelors, who are trained for pedagogical work;*
 - *the volume of the study subjects in the study field should comprise 24 credits instead of 20;*
 - *the programmes and volume of the study subjects of Mechatronics and Electronics are rather insufficient;*
 - *there is a lack of clearly formulated tasks of laboratory work; referring to the preferences of graduates, employers, etc.*
 - *it is proposed to strengthen the knowledge of foreign languages (especially English).*
 - *Having familiarized with the material of self-assessment and discussed the incurred questions, the assessment group conclude that:*
 - *the profile of the trained specialists of Mechanical Engineering is too narrow;*
 - *it is essential to train engineering specialists of a wider profile through the implementation of a variety of specializations;*
 - *to expand the base for laboratory work and prepare descriptions of tasks.*
 - *Weaknesses: the main goal is more suitable for the second cycle of studies; it is master degree students, not bachelors, who are trained for pedagogical work.*

The undergraduate study programme should receive unconditional accreditation.

Having analyzed the supplied conclusions and having considered the pointed weaknesses The Board of Study Assessment Experts opposed to the conclusions of the expert group (Minutes No. 6-25, 27 February 2009) and proposed conditioned accreditation of the group of undergraduate study programmes (Agricultural Mechanical Engineering, etc.; total number – 5 programmes). The expert Board recommends ASU to unite the study programmes and establish a system of study branches.

The visit to Aleksandras Stulginskis University was arranged 22. February 2012. The programme included discussions with administrative staff, with staff responsible for preparation of self-evaluation reports, with teaching staff and graduates and employers. The evaluation group also had observation of various support services (studios, teaching spaces, workshops, library, computer services, etc.).

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The programme aims and learning outcomes are well defined and clear and they are publicly accessible at the university web site in Lithuanian, English and Russian. They are based on professional requirements and the needs of agriculture and to that related administration, manufacturing and trade. The program corresponds to the similar European programs but there scope is larger due to four year program instead of the regular EU three year program. The employers are pleased with the knowledge of graduates, they know beside the engineering also agricultural applications where the machinery is used.

In the self evaluation report table 3 (the numbers of graduates working in companies and organizations, transport and/or administering agricultural machinery and transport) is misleading because it includes all the graduates since the beginning of the programme almost 70 years ago. These figures do not give in this way presented the right picture of at the moment employed graduates. According to employers, recent graduates, students and teachers opinion the programme's name, expected learning outcomes and the final qualification are compatible with each other.

2. Curriculum design

The curriculum design meets the legal requirements and the needs of employers and scientific education. As required in the General requirements for the study programmes, set by the Ministry of Education and Science of Lithuanian Republic, the total volume of the programme is 240 ECTS. The scope of general university subjects is 18 ECTS, the core subjects' volume is 166 ECTS, within 16 ECTS is dedicated for practical training. 12 ECTS is dedicated for the final work and the same amount for free elective subjects. The number of subjects per semester does not exceed 7. The programme gives the basic general expertise in the field of mechanical engineering working in agriculture and related areas. Study subjects and/or modules are spread evenly. There is slight repetition in the themes of the courses, for instance:

- VŽSKB01E Engineering Graphics - IFMMB05E Computer-aided Design
- IFMMB02E Material Science - IFMMB03E Material Technologies
- IFTMB05E Machine Service Technologies - IFMMB09E Machine Manufacturing and Repair Technologies

Teaching methods vary and are tuned to the content of courses and the expected learning outcomes. The contents of the courses include all the modern agricultural machinery engineering basic education.

3. Teaching staff

The teaching staff meets the legal requirements and their qualifications are adequate to ensure learning outcomes. The number of teaching staff is high enough, 40 in total – 5 professors, 24 associate professors and 11 lecturers. The percentage of professors, teaching study field subjects is sufficient. The teaching staff average age is quite high but changes are noticed in the staff, which is becoming younger.

The most capable Bachelor students continue their studies to gain Master's and Doctor's degrees. The gained Doctor's degree ensures the students a teacher's job at the university.

The teachers' workload is well planned. Teachers' professional development is supported and controlled. The teaching staff is involved in scientific research projects, and the number of projects, also at an international level, carried out at the department is quite impressive.

Teaching staff exchange with foreign universities is low and this should be promoted by the university. The university has several Erasmus agreements and these as well as international research projects could be used more for the exchange.

4. Facilities and learning resources

The university had large improvements done and some of them were going on. The premises were renovated and new laboratories with good instrumentation were established. The facilities are in general of high level and in the future they will assure good scientific work and laboratory exercises and research participation for students.

Computer class rooms and programmes are up to date for bachelor studies. The department has good connections to employers and parts of the laboratories are sponsored by them. The Department can also with its contacts with the companies offer places for practice.

Teaching material is mainly in Lithuanian and some of them are in Russian. Part of the students can read Russian text but not all. English textbook and material are also available. The lecture material of teachers is in most cases available at internet. It is recommended that the university library could seek opportunities to make an agreement with the American Society of Agricultural and Biological Engineers. They offer chapters of agricultural engineering textbooks to be downloaded from their library.

In some of the courses more practical exercises could be of benefit. This includes teaching of management of CNC-machines (equipment reported to be in purchase).

5. Study process and students' performance assessment

Entrants that hold the General Certificate of Secondary Education or other corresponding document can be admitted to studies. The admission is organized following the competition order and calculating the total sum of competitive marks. The admission score is calculated for the school leaving examinations of three school subjects (Mathematics – weighted coefficient 0.4, Lithuanian – 0.2, Physics – 0.2) and the final evaluation of one more subject (Foreign Language), all multiplied by the correspondent coefficients as well as added scores. Until 2010 additional 2 points were added for the farmers, intending to study, or their children, who have supplied registration documents of their private or parents' Farm. The additional two points, calculated for farmers or their children were cancelled in 2010, which resulted in the reduction of the possibilities for the entrants from rural areas to be admitted to the study programme due to objective differences between the training of the school leavers in urban and rural areas.

In general in Lithuania the high number of choices the student applicants have makes for each programme a high number of applicants, who have the subject as second or lower choice. The number of first choice is compared to that low. The national system could be improved by restricting the number of secondary choices. This would lead to more thoughtful choices of the students and the university programme would be more important for the students than for instance the city or town of the university. This would motivate the students and in general less drop-outs would happen. The Aleksandras Stulginskis University has noticed the problem of drop-outs and arranged a system with which they have decreased the drop-out rate to low numbers. The university has arranged special courses and support for the poorly advanced students.

The university has several Erasmus agreements. However the students are not using these. Partly this is due to their financial situation. The students are normally working at the end of bachelor programme and they are afraid of losing their job during exchange. Students are also not convinced that their language skills are adequate. They also have had a problem with the university so that not all the courses they had done abroad were accepted by the university.

The university has adequate academic and social support. The assessment system of students' performance is clear, adequate and publicly available. Professional activities of the majority of alumni meet the providers' expectations and are in line with the programme aims.

6. Programme management

The faculty has both long and short term strategy guiding their development. For the strategy work the whole staff should be more encouraged to take part. The program is reviewed regularly. The relevant deepening of students knowledge is ensured through elective courses which are upgraded according to the latest achievements in science and changes in the labor market. The quality management system is clear and well functioning. It is sound and systematic, effective and efficient. All information on quality assurance measures is publicly accessible. Teachers, students and employers feedback is handled correctly. Evaluation results are used in the programme improvement. In order to receive a more full scale view of the programme, its strengths and weaknesses as well as prospective improvements, commission of study programme could have more than one member (social partner) outside the university.

III.RECOMMENDATIONS

- The faculty should find ways to improve the image of agriculture mechanical engineering. For some students the image was not clear.
- Further encouragement of international components (ERASMUS, international projects etc.) in the education and research, both for teachers and students.
 - The department should have better opening of the study programme for external studies, i.e. easing the recognition of courses studied in foreign universities at ASU
 - Language courses for teachers are arranged during the high season, the faculty should offer more courses at different times of the year for teachers
 - The students should be encouraged to learn a second foreign language
- The programme should systematically promote talented students to continue to master and doctoral programmes. This will ensure high quality research and future teacher staff for the university. Where possible for instance with the acquisition of additional scholarships.
- The programme could benefit of a survey within the stakeholders and graduated students of the skills needed in their work. It seems that the division between bachelor and master programme could be improved so that bachelor programme would have some more practical courses and some of the more theoretical courses could be moved to the master programme.
- Administration should keep the entire faculty involved into the strategic development of faculty and course programmes
- Keeping pace with the international development will remain a challenge. Agricultural engineering is at the moment a rapidly developing subject where automation, hydraulics and electronic devices are taken into use fast.

IV. SUMMARY

Strengths of the programme are:

Programme aims and learning outcomes

Strengths: The programme is unique and it meets the demand of employers and society to their satisfaction. Its uniqueness is based on the benchmarking analysis from 200 programs in this area taught at universities in other countries. Students are satisfied with the study programme and additional activities

Weakness: In some of the courses more practical exercises could be of benefit. This includes teaching of management of CNC-machines (equipment reported to be in purchase). The image of agriculture mechanical engineering was not for some students clear.

Curriculum design

Strengths: The programme is unique and it meets the demand of employers and society to their satisfaction.

Weakness: International involvement could still be improved. The university should promote a stronger international involvement both for students and teachers, including staff exchange programmes, co-operation, joint research activities etc. Foreign studies are not always accepted by the department. Bachelor and master programs should have clear division.

Teaching staff

Strengths: The teaching staff is involved in a good number of national and international scientific projects as well as in consulting activities in their subject areas.

Weakness: The teaching staff average age is quite high but the university has PhD students and the future staff is ensured.

Facilities and learning resources

Strength: The programme has a good research perspective. Partly good facilities and excellent laboratories, which will make possible a high level scientific work and student practical exercises.

Weakness: No weakness found at the moment

Study process and students' performance assessment

Strengths: The programme is taught at the moment in Lithuanian. English and Russian studies are in plan. The programme is flexible and provides opportunities for students to select combinations of alternative study courses according to their areas of interest. The program management has good contacts with a number of agricultural enterprises and companies operating in the area of agricultural machinery and transport. The university has arranged special courses and possibilities for poor advanced students decreasing the number of drop-out considerably.

Weakness: Low number of students participating in the international exchange programmes. This should be promoted by the university but it is also a common problem in Lithuania because the students at the end of bachelor programmes are working to ensure a sufficient level of living.

Programme management

Strengths: The programme management / strategy is on the sound basis, the administration has a clear vision of the future. Quality management system is in good conditions and effective.

Weakness: In order to receive a more full scale view of the programme, its strengths and weaknesses as well as prospective improvements, commission of study programme could have more than one member (social partner) outside the university.

V. GENERAL ASSESSMENT

The study programme *Agricultural Mechanical Engineering* (state code – 612H30002) of 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.	Teaching staff	3
4.	Facilities and learning resources	4
5.	Study process and students' performance assessment	3
6.	Programme management	4
	Total:	20

*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:

Dr. Joerg Longmuss

Grupės nariai:
Team members:

prof. dr. Jukka Ahokas
prof. dr. Franco Bernelli
assoc. prof. dr. Sergey Shaposhnikov
assoc. prof. dr. Kazimieras Juzėnas
Martynas Ubartas