STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

ŠIAULIŲ VALSTYBINĖS KOLEGIJOS *AUTOMATIKOS ĮRENGINIŲ* PROGRAMOS (653H62006) VERTINIMO IŠVADOS

EVALUATION REPORT OF *AUTOMATICS* (653H62006) STUDY PROGRAMME at ŠIAULIAI STATE COLLEGE

Grupės vadovas:
Team leader: Anne-Marie Jolly Desodt

Grupės nariai:
Team members: Marios Kasinopoulos

Juozas Vaitkus

Artūras Klementavičius

Tautvydas Jančis

Išvados parengtos anglų kalba
Report language - English

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Automatika
Valstybinis kodas	653H62006
Studijų sritis	Technologijos mokslai
Studijų kryptis	Elektronikos ir elektros inžinerija
Studijų programos rūšis	Koleginės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3)
Studijų programos apimtis kreditais	180 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Elektros inžinerijos profesinis bakalauras
Studijų programos įregistravimo data	2009-08-31, Nr. 1-73

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Automatics
State code	653H62006
Study area	Technology science
Study field	Electronics and electrical engineering
Kind of the study programme	College studies
Study Cycle	First
Study mode (length in years)	Full-time (3) and part time
Volume of the study programme in credits	180 ECTS
Degree and (or) professional qualifications awarded	Professional Bachelor of Electrical Engineering
Date of registration of the study programme	2009-08-31, Nr. 1-73

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I. INTRODUCTION

Šiauliai College (ŠK) conducts the Automatics Study Programme (A) in the Faculty of Business and Technology. Electrical and automatic equipment college studies have started rather long time ago, and were upgraded according the legal requirements in 2005, as well as the analysis on the aims and objectives of the studies were conducted in 2007-2008.

Self-evaluation of the Automatics study programme was conducted in 2010-2011 academic years. Regarding the results of the survey, it has been decided to seek closer ties with the existing social stakeholders and to seek new relations on purpose to achieve that the content of the study programme, students practice placements and final projects would meet the latest requirements for electrical engineering professionals.

The faculties at ŠK are led by the deans. In each faculty, the main structural unit is the department that conducts the study process: the department is led by head of department, but the administration of the faculty is responsible for the qualitative process of the management of study programs and the department with the general program committee for its development, optimization and assurance of study results.

The self analysis report has been elaborated from September 2011 to June l 2012 by a workgroup. The document is well prepared, it includes strength and weaknesses and had separate analysis for part time and full time students: The visit on site took place on Thursday 18th October 2012 according to the following schedule:

9h 9h45 Meeting with administrative staff

9h45 10h30 Meeting with staff responsible for preparation of SER

10h45 11h45 Meeting with the teaching staff

11h 45 12h 30 Meeting with students

13h30 14h15 Observation of various supports services

14h15 15h Familiarization with student's final work and examination material

15h 15h45 Meeting with graduates and employer, social partners

16h 15 16h30 Introduction of general remarks of the visit

This report reflects the opinion of all the team.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

Regarding the information presented in the self-evaluation report the intended learning outcomes were corrected, new study subjects were introduced, the contents of the subjects was updated; logical layout of the subjects in semesters was specified.

During the analyzed period of five years, learning outcomes of the study programme were continually analyzed including students, graduates and employers into the research. It can be marked the contacts with the employers were non-formal and related mostly during discussions of student practice result, but as these practices concern most of the potential employers of the graduates, it was efficient. Regarding the juridical requirements, the study programme was continuously re-arranged.

The programme aims and learning outcomes are well defined, clear and publicly accessible. Learning outcomes defines the abilities of the graduates. In the formulation of the outcomes it is written that the students have to be able to perform all outcomes. The programme aims and learning outcomes are based on the academic and/or professional requirements, public needs and the needs of the labour market.

The programme aims and learning outcomes are consistent with the type and level of studies and the level of qualifications offered. The name of the programme, its learning outcomes, content and the qualifications offered are compatible with each other, moreover the employers we met during the visit were very satisfied with the graduates.

2. Curriculum design

The curriculum design meets legal requirement concerning the time of contact and the time for practices, which are very important at professional bachelor level. Study subjects and/or modules are spread evenly, their themes are not repetitive.

The content of the subjects and/or modules is consistent with the type and level of the studies, the basic subjects and social sciences are adapted to the specialty, but the mathematics course program corresponds more to finance area than to electronic and automation; the topics on renewable energy are absent, as well as the topic on intellectual property.

The content and methods of the subjects/modules are appropriate for the achievement of the intended learning outcomes, but the experts noticed that, according the student’s of the programme remark, the introduction course concerning the automation should

start a semester earlier, it would be important to motivate first year students, that came in this program to study engineering in this field.

Concerning abilities and actions to be active in the critical situation (e.g., accident that could happen due to electrical problems) the knowledge associated are not formally included in the program as a subject: they are covered by the teacher in a subjects concerning electricity. However, experts pointed out that a specific subject would be important.

The scope of the programme is sufficient to ensure learning outcomes concerning automatic and electronic equipment of today, the content of the program treats of all classical devices, however, the content of the programme does not well reflects the latest achievements in science and technologies: for example, the physics course does not include the basics of the new energy sources that creates difficulties in their presentation in electrical equipment subjects content. It is missing also the introduction of knowledge concerning remote control by computers. Also, there is a lack of recommendation of sources in English, because in those fields, numerous English books exist in the literature at this level.

3. Staff

The study programme is provided by the staff meeting legal requirement: teachers with at least 3 years practical experience teach 70.51 per cent of all the scope of study field subjects. 14.75 percent of study field subjects are delivered by the teachers with degree in science. The qualifications of the teaching staff are adequate to ensure learning outcomes. According SER the part of the lectors with doctoral degrees is potentially increasing and the number of assistants is decreasing.

The number of the teaching staff is also adequate to ensure learning outcomes: there are 25 teachers employed for the implementation of the study Programme, 18 of them teach study field subjects, in front of the total number (52) of part time and full time new student of 2012 it is enough. The teaching staff turnover is able to ensure an adequate provision of the programme: the greatest number of teachers is in the ages 31 to 45 and 1 new professor and 4 new lecturers arrived in the last years.

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme, but the international level is near to absent: mobility of staff is very low. Teachers go on internship every 5 years but it is only observation internship that is to say that they are not having a job or a project in the enterprise, they only observe new equipments for instance.

The teaching staff of the programme is not deeply involved in research (art) directly related to the study programme being reviewed. They are involved only very weakly, mostly

via the organizing of the students practice. The staff activity in the applied research is also very small. The teachers have difficulties to sign contract with enterprises because of the legal procurements.

Teachers work very individually, there is a lack of coordination between them. Teachers have relations with University of Siaulai and it is a good thing because they can discuss with researchers, students can use some of the devices of the university; some teachers are employed both by the university of Siauliai and by the college.

4. Facilities and learning resources

The premises for studies are adequate both in their size and quality. The teaching and learning equipment (laboratory and computer equipment, consumables) are adequate both in size and quality. One very strong point has to be pointed out that is the existence of high voltage experimental laboratory that creates a possibility to effectively teach the human safety course and add the demonstrations of the abilities of different protective materials. Important renovation of the equipments of the laboratories took place during the last years, however, students still need to go in the enterprises to use more modern devices.

The higher education institution has adequate arrangements for students' practice: in the company during the practice period there is a trilateral agreement among the College, the student and the company signed. Practices are done in such enterprises as "Elga", SC "Lesto", SC "Lietuvos geležinkeliai", General Partnership "EMO", JSC "Šiaulių gatvių apšvietimas", JSC "Fisanta", JSC "Schindler-Liftas", JSC "Elektrosaugos įrangos centras", etc.

Teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible. College Library and Reading Room are open on Mondays - Thursdays from 8.00 a.m. to 7.00 p.m. and on Fridays - from 8.00 a.m. to 4.00 p.m.
Siauliai State College Library offers subscription databases

- EBSCO Publishing;
- Emerald Management eJournals Collection;
- Oxford University Press Journals Collection;
- Taylor & Francis Online Library;

However, the international literature is a serious weakness; there is a strong lack of English literature.

5. Study process and student assessment

The admission requirements are well-founded. The department do good job to attract secondary school pupils, but does not have ideas to attract the female students. Statistics for admission of students show that some people that applied and were accepted, finally decide not to study: for example in 2011, 19 students had chosen this program in Siaulai College as fist priority in full time study, but only 11 came.

Students find that studies are more complex than they imagined and have difficulties especially in the 1st year, and those who should make this year for the second time do not come back, this explain the high number of dropout: in 2009, 47% of students were lost that is to say that they did not go to the end of the program.

The organization of the study process ensures an adequate provision of the programme and the achievement of the learning outcomes. There is good coherence of the curriculum (sequencing). Teachers are enthusiastic and active in preparation of teaching materials: we especially appreciated the pedagogical attempts to make mathematics easier: when the teacher realizes that students do not understand a concept, she prepares either specific exercises to decompose the problem in smaller ones, or she gives a small project to use it.

Students are encouraged to participate in research, artistic and applied research activities, but as many students work while studying, this activity is not enough intensive. Students have opportunities to participate in student mobility programmes, but there are not enough places for Erasmus exchanges dedicated to this program: in 2007 one student participated in Socrates/Erasmus student exchange program and went to study in Higher School of Lübeck, Germany. In 2010 - 2011 academic years two students went to Hungary, Szechenyi Istvan University, in 2011 – 2012 academic years' two students went under Socrates/Erasmus student exchange program to Karabük University, Turkey. Since 2012 there was the exchange agreement with Novia University in Finland signed: this program allowed two students of Automatics study programme to do their practices in Norway. In front of the number of students in the program it is not enough: international dimension stays too weak.

The higher education institution ensures an adequate level of academic and social support: social, incentive and onetime scholarships can be granted for the College students. Scholarship amount is determined by the student's semester performance. During the latter analyzed years 21 per cent of students received incentive scholarships and 3 per cent – onetime scholarships.

During the on-site visit we observed a good climate between teachers, students, administration and student union. The assessment system of students' performance is clear, adequate and publicly available, but is not clearly expressed position concerning plagiarism. Professional activities of the majority of graduates meets the programme providers' expectations, and about 2 graduates among about 43 continue their studies in Master Degree at Siauliai University each year, but the program has not enough relations with big national or international companies.

The student member in the evaluation team offers the following remarks:

Students are satisfied with teachers, administration and students‘ union. Students are filling questionnaires about each subject after each semester, but the form of them is not well formulated. Free space for comments should be included in these questionnaires for more objective information and that should give better results of analyzing what is good and what should be improved in this study programme.

There is no club of robotics or something similar where students who are more interested in one or another subject or have some hobbies and maybe they do not have enough equipment and knowledge for improvement could get more specific knowledge and practical skills. Such kind of clubs is very popular and they give an opportunity to participate in different events and competitions where you can show for public what are you interested: sometimes it is just a good start for a bright and successful future.

During the on-site visit, analyzing course material we found out that course projects are very similar in their content just numbers are different. These projects should show not just how student can calculate, but also how he/she can relate these numbers and explain them in more detailed way with additional descriptions of words. This is very important because it shows how fluent your written language skills are and how you can express and formulate your ideas on paper.

6. Programme management

Responsibilities for decisions and monitoring of the implementation of the programme are clearly allocated, the self-evaluation system is well introduced, but there is absence of the study program committee. The faculty committee for the studies programs does not have ability to analyze in details all problems concerning study programme. Information and data on the implementation of the programme are regularly collected and analyzed, but the absence of the free comment part in the evaluation questionnaire filled by the students creates a certain indefinites in the proposals to change or to correct the study process.

The outcomes of internal evaluations of the programme are used for the improvement of the programme: in 2007-2008 academic years the analysis on the aims and objectives of the studies of Automatics study Programme was conducted. The issue how the aims and objectives of the study Programme meet the purpose of the study Programme was discussed. In 2009 the survey on the opinions of the students and employers about the aims and objectives of the study Programme was conducted. Regarding the results of the survey the aims and objectives of the Automatics study Programme were corrected. Partial self-evaluation of the Automatics study Programme was conducted in 2009-2010 academic years on the issues of the framework and the content of the study Programme. Regarding the results of the survey, the number of the learning outcomes was reduced to 5 from 8. Study subjects were re-grouped and their scopes were corrected according to the requirements of the general description of the degree-awarding first cycle and integrated study programmes. Unpopular specializations were eliminated and optional subjects were introduced instead of them. Self-evaluation of the Automatics study Programme was conducted in 2010-2011 academic years. Regarding the results of the survey, it has been decided to seek closer ties with the existing social stakeholders and to seek new relations on purpose to achieve that the content of the study Programme, students practice placements and final projects would meet the latest requirements for electrical engineering professionals. After the change in legislation competencies of the study Programme were changed to the intended learning outcomes, new study subjects were introduced, the content of the subjects was updated; logical layout of the subjects in semesters was specified.

The evaluation and improvement processes involve stakeholders, the employers are involved into analysis and upgrading of the study process, but this does not have a systematic character. The internal quality assurance measures are effective and efficient. Very efficient monitoring of the graduates (during 3 years after graduation), but the employment statistics are a bit tricky because they are realized 3 months after graduation and, at this moment, students are still on holidays, which explain the important number of unemployed people. The college began to use the information system dedicated first to employment of alumni, to follow the students during their studies, so as to obtain a system of monitoring of all to internal live of the college. It is the reason why the SER included curves and demonstrative information of high interest for experts.

III. RECOMMENDATIONS

1. To increase the international dimension: the mobility of students and teachers, the recommended literature in English and its amount in the library.

2. To transform the curriculum plan to introduce automation subjects earlier.

3. To include the basics for the renewable energy physics and automation that is used for these energy sources and systems.

4. To form the study program committee for this A program.

5. To find the ways of more formal collaboration with the employers, e.g., to involve into the EAE study program committee the representative of stakeholders.

6. To increase applied research even using data obtained through simulation of the processes

7. To develop relations with big companies.

IV. SUMMARY

There is a good coherence of the curriculum: the sequencement of subjects is adequate (except perhaps for introduction of automation). Moreover, general subjects and social sciences have been adapted to engineering and to this specialty. We noticed especially that teachers made pedagogical attempts to make mathematics easier. Electrical safety issues are practically demonstrated which is very important for technicians in electricity, this is an innovation with respect to other programs we visited. A high voltage laboratory has also been established: students are really prepared to what they will see in enterprises.

An important renovation of the equipments of the laboratories took place during the last years: it is important in a field where obsolescence is quick, because the students must see the same devices as those used in enterprises. The observation of final works of students showed us that quality of final thesis and semesters works were high. The teachers are enthusiastic and very active in preparation of teaching materials adapted to the difficulties of students. Of this real implication of teachers in the success of students results a good climate between teachers, students, administration and student union.

We observed that the department do good and innovative job to attract secondary school pupils in the program, however we observed an absence of female students, so the communication should be adapted to attract them and increase parity. The college has imagined and put in practice a good monitoring of the graduates (since 3 years) and has then expanded this information system to internal live of the college: this allows a real quality demarche. We observed that employers and graduates are happy of the program.

For a program concerning as well electrical and automation engineering, automation subject is introduced too late, if it was advanced in the first year, things would be more easy and more interesting for students.

We regret the absence of a topic on intellectual property which is important in the scientific and technical fields. In the description of subjects there is a lack of recommendation of documents in English language and in the library there is a lack of English literature. Also, we observed from the staff no clearly expressed position concerning plagiarism.

For the moment, applied research activities of teachers are too weak; the proximity of the University, the existence of software making easier work by simulation should encourage the development of this activity. The teachers should be encouraged to go on international mobility in the exchange programmes: for the moment, this mobility is too low.

Concerning the management of the study programme, we regret that there is an absence of a study program committee and in particular we noticed the absence of formal collaboration of the employers in the design of outcomes. The evaluation of teachings by students would be more efficient is a free comment part was included in the evaluation questionnaire filled by the students.

V. GENERAL ASSESSMENT

The study programme Automatics (state code – 653H62006) at Šiauliai State College 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	4
2.	Curriculum design	3
3.	Staff	3
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.

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V. APIBENDRINAMASIS ĮVERTINIMAS

Šiaulių valstybinės kolegijos studijų programa *Automatika* (valstybinis kodas – 653H62006) vertinama **teigiamai.**

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	4
2.	Programos sandara	3
3.	Personalas	3
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

Programa yra nuosekli: dalykų eilės tvarka tinkama (galbūt išskyrus įvadą į automatiką). Be to, bendrieji dalykai ir socialiniai mokslai pritaikyti prie inžinerijos ir šios specialybės. Ypač pastebėjome, kad dėstytojai pedagoginėmis priemonėmis siekia palengvinti matematikos studijas. Praktiškai demonstruojami elektros saugos klausimai – tai labai svarbu elektros technikams ir nauja, palyginti su kitomis mūsų vertintomis programomis. Taip pat įsteigta aukštos įtampos laboratorija: studentai iš tikrųjų parengiami tam, ką matys įmonėse.

Pastaraisiais metais labai atnaujinta laboratorijų įranga: tai labai svarbu sparčiai senstančioje srityje, nes studentai turi matyti tokius prietaisus, kokie naudojami įmonėse.

Peržiūrėję studentų baigiamuosius darbus pamatėme, kad diplominių ir semestro darbų kokybė gera. Dėstytojai entuziastingi ir labai aktyviai rengia prie studentų patiriamų sunkumų pritaikytus metodinius išteklius. Taigi, dėstytojai iš tikrųjų stengiasi padėti studentams, todėl sukuriami geri dėstytojų, studentų, administracijos darbuotojų ir studentų sąjungos santykiai.

Pastebėjome, kad fakultetas gerai ir naujoviškai skatina vyresniųjų klasių mokinius studijuoti šią programą; vis dėlto pastebėjome, kad trūksta studenčių, todėl skelbiant apie studijas reikėtų siekti jų pritraukti daugiau ir didinti lygybę. Kolegija parengė ir (jau trečius metus) praktiškai vykdo gerą absolventų stebėseną; šią informacijos sistemą ji pradėjo taikyti ir kolegijos viduje, todėl iš tikrųjų galima gerinti kokybę. Pastebėjome, kad darbdaviai ir absolventai programa labai patenkinti.

Į programą, kuri taip pat susijusi su elektros ir automatine inžinerija, automatikos dalykas įtrauktas per vėlai; jei jis būtų perkeltas į pirmuosius metus, studentai klausimus suprastų lengviau ir labiau jais domėtųsi.

Deja, į programą neįtraukta svarbi mokslo ir techninės sričių tema – intelektinė nuosavybė. Dalykų aprašuose trūksta rekomenduojamų dokumentų anglų kalba, bibliotekoje trūksta angliškos literatūros. Taip pat pastebėjome, kad darbuotojai neturi aiškios pozicijos dėl plagiavimo.

Šiuo metu dėstytojų taikomųjų tyrimų veikla per silpna; šią veiklą reikėtų skatinti atsižvelgiant į glaudžius ryšius su universitetu ir suteikiant programinę įrangą, kuria palengvinamas imitavimas. Reikėtų skatinti tarptautinį dėstytojų judumą – dalyvauti mainų programose: šiuo metu judrumo trūksta.

Studijų programos vadybos atžvilgiu apgailestaujame, kad neįsteigtas studijų programos komitetas; pirmiausia pastebėjome, kad nustatant numatomus rezultatus trūksta oficialaus darbdavių bendradarbiavimo. Studentai dėstytojus galėtų vertinti veiksmingiau, jei studentų pildomame vertinimo klausimyne būtų palikta vietos kitoms pastaboms.

III. REKOMENDACIJOS

1. Skatinti tarptautinį aspektą: didinti studentų ir dėstytojų judumą, rekomenduoti literatūrą anglų kalba ir didinti jos kiekį bibliotekoje.
2. Pakeisti studijų programos planą – į jį anksčiau įtraukti automatikos dalykus.
3. Įtraukti pagrindines žinias apie atsinaujinančiosios energijos fiziką ir automatiką.
4. Įsteigti šios Automatikos programos studijų programos komitetą.

5. Ieškoti būdų formaliau bendradarbiauti su darbdaviais, pvz., į Automatikos studijų programos komiteto veiklą įtraukti socialinių dalininkų atstovus.
6. Didinti taikomųjų tyrimų skaičių, taip pat taikant duomenis, gautus imituojant procesus.
7. Plėtoti ryšius su didelėmis įmonėmis.

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