SKVC

STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

KLAIPĖDOS VALSTYBINĖS KOLEGIJOS

ELEKTROS IR AUTOMATIKOS ĮRENGINIŲ PROGRAMOS (65301T103, 653H62008)

VERTINIMO IŠVADOS

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EVALUATION REPORT

OF *ELECTRICAL AND AUTOMATION EQUIPMENT* (65301T103, 653H62008)

STUDY PROGRAMME

at KLAIPĖDA STATE COLLEGE

Grupės vadovas:
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Išvados parengtos anglų kalba
Report language - English

Vilnius
2012

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Elektros ir automatikos įrenginiai
Valstybinis kodas	653H62008
Studijų sritis	Technologijos mokslai
Studijų kryptis	Elektronikos ir elektros inžinerija
Studijų programos rūšis	Koleginės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3), ištęstinė (4)
Studijų programos apimtis kreditais	180 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Elektros inžinerijos profesinis bakalauras
Studijų programos įregistravimo data	2002-08-30, Nr. 1515

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INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Electrical and Automation Equipment
State code	653H62008
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), part-time (4)
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	2002-08-30, Nr. 1515

CONTENTS

To Studijų kokybės vertinimo centras

I. INTRODUCTION

The Klaipeda State College (KVK) offers a variety of programmes within 3 academic divisions. These are the Faculty of Technology (FT), the Faculty of Social Science and the Faculty of Health Science. The programme under evaluation is the programme Electrical and Automation Equipment (EA) supervised by the Department of Electrical and Mechanical Engineering of the FT. This programme was first registered in year 2002.

The EA programme is offered in Full-Time mode with duration of 3 years and in Part-Time mode with duration of 4 years. The programme includes theoretical and practical work as well as placement in industry in collaboration with the employers and other stakeholders. The programme is designed with a structure based on the European policy for Higher Education (Bologna Process). It awards 30 ECTS credits per semester and 180 ECTS per year.

The main aim of the programme is to offer appropriate education to students willing to acquire a professional Bachelor in the field of Electrical and Automation Equipment. The programme aims and learning outcomes are based on the training requirements of the local industry, the existing regulations of the college and the local legislation.

The remote study of the SER by the External Quality Evaluation team was carried out in September 2012 and the on-side visit was performed the 15 to 20 October 2012. It is given below the programme of the on-site visit to Klaipeda State College which took place the 6th October 2012.

9:00 - 9:45   Meeting with administrative staff

9:45-10:30   Meeting with staff responsible for preparation of SER

10:30-10:45 Break

10:45-11:45 Meeting with teaching staff

11:45-12:30 Meeting with students

12:30-13:30 Lunch

13:30-14:15 Observation of various support services (studios, teaching spaces, workshops, library, computer services...)

14:15-15:00 Familiarization with student's final works, examination material

15:00-15:45 Meeting with graduates and employers, social partners

15:45-16:15 Discussions, observations of the visit (close-door expert's group meeting)

16:15-16:30 Introduction of general remarks of the visit.

The following evaluation report represents the unanimous opinion of the entire team.

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II. PROGRAMME ANALYSIS

1. *Programme aims and learning outcomes*

The programme aims and learning outcomes (LO) are well defined. They are based on the local legislation, the needs of the local market and the employability of the graduates. In addition to that the programme and LO were designed taking in account the Quality Assurance European Standards and Guidelines, the ECTS system and Dublin descriptors.

In most of the cases the formulation of the LO is precise and reflects the content and aims of the study programme. Even though in some cases the formulation is too general and do not reflect precisely the level of the programme, like for example the learning outcome C2 where we read the statement " Is able to analyze and simulate electrical engineering, automation devices and systems …..". Some improvements could be made in the formulation in order to make them more precise taking also in account the level 6th of the programme. It is noted that following the European Qualifications Framework (EQF) classification, the Bachelor is at level 6, the Master at level 7 and the Doctoral at level 8. According to the information provided during the meetings the LO are communicated to students and they are easily accessible to the public through web-sides and other printed documents.

The programme aims and LO are based on the academic and professional requirements of the Professional Bachelor in order to satisfy the needs of the local labor market and give at the same time solid foundations at those wishing to continue for further studies at universities. According to the information provided during the visit, the involvement of the employers in the design of the programme is important. They inform the staff in which specific fields and how the study programme can be improved: More specifically (i) they inform about topics in which students need more training, (ii) they suggest new topics of study resulting from the new technology requirements, (iii) they propose new laboratory equipment for training which will satisfy their needs, etc. These suggestions result from the performance of (i) the students which do their training in industry and (ii) the employed graduates of the college

There is no clear information whether a representative of the employers participate in committees of the college. In the SER it is written that in the "Study Program Committee" there is a "company specialist", and during the meeting with employers, when they were asked if a representative participates in any committee of the college, they did not give a positive answer. However it is clearly said that most of the important consultations take place during the assessment of student's projects.

The programme aims and learning outcomes are in general consistent with the type, level of studies and level of qualifications offered. This is clearly shown from the positive comments of the employers regarding the performance of their graduate's employees. Similar comments are given by the graduates working now in industry as employees or as employers too.

The Learning Outcomes (LO) and the name of the programme are only partly compatible. The LO proposed cover many fields of engineering, and not only Electrical and Automation Equipment. The graduates acquire much more skills and can be employed in a variety of placements than those implied by the name of their qualification.

2. *Curriculum design*

According to the SER the Curriculum Design (CD) meets the legal requirements. More specifically it complies with the national local legislation and the local regulations for the postgraduate programmes.

From the information provided in the plan of studies included in the SER, the study subjects and /or modules and their themes are not repetitive. Their contents also are consistent with the type (college) and level of a Bachelor programme. The scope, content and methods of teaching of the subjects included in the programme are in general appropriate for the achievement of the LO. Some weak points have been noted and they are given below together with some recommendations:

- It is proposed to modify the content of mathematics and give more emphasis in the following topics:
- Probability Theory and Statistics: The total of 6 hours theory, although there are 14 hours practical, is not enough for all the topics to be covered including the presentation of Data with MS Excell software.
- The topic of Laplace Transform is not sufficiently covered in mathematics. It is not clear if the mathematical aspect is covered in control theory.
- An introduction on Z-Transform at a sufficient level should also be covered in mathematics.
- A subject on Sustainable Development is missing. In engineering courses, and particularly those related to energy and electricity, the three components of Sustainable Development should appear and be applied in their relations. Ecodesign is a major point , projects also, so a lecture in a subject is not enough
- The Laboratory sessions in Physics should include the principles of energy and sensors.
- The subject Methodology of Applied Research should be moved in the last year of studies, when the students have more solid foundations of the engineering discipline.

Teachers are open to new subjects and subject content modifications. The examination of the content of the subjects shows that the programme at a certain degree reflects the latest achievements in electrical engineering technology. A weak point is that in the recommended literature in general there are no English books. Only in some cases English books are proposed and these are often limited to 1 book.

Even though there is a lack of the knowledge of the English language among students, it would be a positive step to propose English books for those who know and those with less knowledge but willing to learn. This will give also motivation to all students to make an effort to learn English, and it will be helpful for foreign students thinking to come for studies in this programme as exchange students. There is no information whether there is an information package in English language with all information related to the study programme.

3. Teaching Staff

The number and qualifications of all the members of teaching staff are adequate and they ensure a good level of studies. The good quality of teaching, results from the comments of the students met in the meeting with students. The composition and qualifications of the staff according to the information provided by SER meet all the legal requirements. In fact from a total of 29 teachers, 5 teachers representing 17.24% of the staff hold a doctoral degree. These teachers teach 15.15% of the scope of study field subjects. The minimum requirement is 10%.

The ratio number of students per teacher is given and complies with the local directives. According to the information given by the staff during the meeting with them, the college creates suitable conditions for their professional development and they are very satisfied working in the college. More specifically they said that they have not any problem related to their working load, their salaries, their promotion policy, the provision of teaching tools and their working environment in general. This favorable working environment is good enough to ensure the provision of the programme at a good level.

The teaching staff is involved in certain applied research activities at a good level and these activities are directly related to the study programme being reviewed. Even though the applied research done by the teaching staff should be increased to higher level. In this purpose it is advised to form a research committee which will work to improve the research policy of the college. The first thing to be done is to try to improve the laboratory equipment, and help the staff to be involved in research programmes in collaboration with other institutions mainly

abroad. This is necessary in order to keep and improve the good level programme of study offered now.

Teacher mobility is not very high, it is simply good. In 2011 from the 20 full time teachers 2 teachers (10%) participated in staff exchange programmes. This number could be improved. The staff is willing to participate more in Erasmus exchanges and in other educational programmes like Leonardo and Tempus. The international office is working correctly in this direction and it should be given more help and especially more information on European educational and research programmes. There is a very good prospective to increase mobility because there are many foreign institutions willing to cooperate with institutions abroad.

The collaboration between teachers and students is very good. There is teacher's support to weak students and an open consultation to all students. Teaching aids prepared by teachers are available in library and on internet, and students are very satisfied..

4. Facilities and learning resources

According to the data provided in the SER the total size of the premises marginally satisfies the minimum requirements. On the contrary the quality of the premises seen during the visit is very good. The plan to organize lectures for 200 students in an auditorium is not adequate for the studies quality and it is better if this plan is not implemented. However it can be very useful for presentations, conferences and other academic or social activities.

The size of laboratories and the arrangements offered by the institution for students practice are adequate. As regards the equipment, the quality of some important equipment for the student's experiments is not adequate. This equipment needs to be changed step by step: the existing ones are of old technology and students-graduates need to know how to use new high technology equipment. This will be extremely useful for the employment in industry where the equipment used is probably better.

It should be noted, that administration mitigates to some extent the lack of modern equipment by short-term borrowings of mobile modern equipment from Klaipeda University on the basis of co-operation agreement. On the other hand, the programme has realistic chances to obtain some new equipment from the 2 projects funded by European Structural Funds. Namely, these funds are assigned to the College, and one project is in the final stage, with new equipment just only delivered. The next project is in a resubmission stage, i.e. the application for purchase of new equipment is submitted repeatedly to the tender organized by the Central Public Procurement Agency. Nevertheless, we emphasize the need for the following equipment:

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1. Multimeters. The old analogue that exists now should be replaced by small digital units.
2. Power supplies d.c and a.c.
3. Oscilloscopes (better digital).
4. Some transformers for the a.c. laboratory.

A research laboratory for applied research should also be initiated. This can be equipped gradually and be funded by external projects with the involvement of staff in research programmes. We saw during the visit of the laboratories some very good equipment like microprocessors of recent technology and some very useful software programmes for educational purposes.

As regards the teaching materials (textbooks, books, periodical publications, databases), these are adequate and accessible. There is also a good enough number of computers available for students in laboratories, classes and library. However it is noted that English literature sources are not provided in the study description of subjects and that in the library there are too few books in English language. This should and could be easily improved.

In conclusion the facilities and learning resources are good. There is only an urgent need for starting replacing the old equipment.

5. *Study process and student assessment*

The methodology applied for the admission of students is clearly explained. The statistics included in the SER show that in the last 5 years there was a great number of applicants for a small number of places available. More specifically for 2011 there were 130 applicants for 36 admitted students in the full time programme and 70 applicants for 16 places in the part time programme. This shows that the programme is highly estimated in the local society.

The organization of the programme is clearly explained. The administration responsibilities are adequately distributed in a way to ensure efficiently the provision of the programme and the achievement of the learning outcomes. From the information given in the SER we may see that students are sufficiently supported in almost all the fields i.e. academically, financially and socially. They are also encouraged to participate in research, artistic and applied research activities.

Some important positive conclusions resulting from the meeting with the students is that the students are very satisfied from their studies and the work expectations after graduation. It has been said also that the collaboration between students and teachers is almost perfect. However, student international mobility is weak. More motivation and assistance should be

given to students to participate in European programmes like Erasmus and increase the outgoing mobility. Similarly a greater effort should be done to increase the incoming mobility.

The assessment system of student's performance as explained in the SER is clear, adequate and publicly available. The percentage of the employment of graduates 95% (2011) is exceptionally high. This largely meets the programme providers' expectations.

Student member of expert group made following comments:

International mobility, as it is mentioned in self-evaluation report, should be improved, but not just only for students but also for teachers. Usually additional lectures of English language are organized for them to improve their skills in the destination countries. It is noted also, that the employers remarked that international exchanges is a valuable experience.

Students are coming from secondary schools with very different knowledge of general subjects and it was said during student's meeting by one student, and the others agreed, that additional lectures of these subjects would be useful. Some basic subjects like law, sociology and others are not oriented to engineering.

Students are happy about almost all teachers. They are filling questionnaires about each subject and because groups are not so big, the problems indicated in the answers can be easily solved. It is clear that if for example the students need more tutorial, the teachers are ready to discuss the problem with them.

Sustainable development topics should be introduced in some subject's content, because now it is an important topic. This information should give students a better view about the tendencies of industry: to reduce waste and take any possible action to save money, time and resources. Moreover, during the on-site visit employers also mentioned that this topic of sustainable development should be included into the content of the programme, because they need technicians aware of these problems.

Employers who participated at final students assessment projects said that all thesis were good and they are also satisfied with the general knowledge of the students. Graduates get their job fast, as some of the students during the meeting mentioned, that even during the first year of studies they already get offers from employers.

6. Programme management

The management structure is analytically described in the SER. Although there is no diagram showing the whole structure of the management, the responsibilities and monitoring of

the implementation of the programme are clearly allocated. The administration of the college is under the responsibility of the director and two deputy directors are responsible one for the strategic development and quality and the other for the academic activities. The dean and vice-deans of the faculty are responsible for the implementation of studies and quality assurance of academic activities.

Information and data on the implementation of the programme and important information related to the students are regularly collected and analyzed. More specifically surveys to assess the quality of the programme are conducted every year and surveys for the assessment of the subjects are conducted every semester on completion of the subjects. This shows that there is a monitoring policy applied systematically to the college.

The outcomes of the internal and external evaluations of the programme are used for the improvements of the programme. The results of the previous external quality evaluations were taken in account and the programme was improved according to the recommendations. Some of the important improvements done are given in the SER. For example the activity area of the specialization of the programme was renamed, separate subjects were singled out and number of hours for contact and individual work was specified. During the meetings it was noted a strong willingness of all staff to work in order to improve the management, services and performance in general of the programme offered to students.

The measures proposed by the internal quality assurance are effective and efficient. In the improvement process the stakeholders, are often involved. The students and industrial partners participate in the organization of joint seminars e.g. qualification improvement seminars. It is proposed finally to make attempts to motivate girls to study in this programme. This could be improved by giving more information about the study programme in secondary education.

III. RECOMMENDATIONS

1. The formulation of the Learning outcomes should be improved in some cases. The content should be more precise and not general, and the sentences formulation should follow the general practice.

2. The content of the subject mathematics should be modified and give more emphasis to engineering. Introduce more applied mathematics.

3. The new subject Sustainable Development should be introduced.

4. The Physics laboratory sessions should include the principles of energy and sensors.

5. The subject "methodology of applied research" should be given in the 3rd year.

6. The academic staff should be involved in more research activities.

7. The students and teachers mobility should be increased.

8. Some laboratory equipment should be improved.

9. The subject description should include English text-books for consultation.

10. The Library should be provided with more English books

11. The administration should make an effort to attract girls to study the programme.

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IV. SUMMARY

The Management of the programme is of good quality and the global design of the programme is good. The study programme is appreciated by stakeholders who want to attract the best students. There is clear vision of the future of the programme of the college and the staff and students are satisfied to work or study here. The collaboration between teachers and students is very good. The collaboration also between employers and college is efficient and as a result the employment of the graduates is of high level.

The teachers are open to new subjects and the weak students are supported by teachers. This system of consultation is open to all students. Teaching aids prepared by teachers are available in library and on internet.

The name of the programme is more restrictive than the content. In some cases the Learning Outcomes are too general and do not reflect the level of the programme. Basic subjects like mathematics are not well adapted to engineering specialty and a subject on sustainable development should be introduced. The principles of energy and sensors should be included in the Physics laboratory experiments. In some laboratories the quality of the equipment needs to be improved. More specific information is to be given in the main text of the SER. International mobility of students and teachers should be increased. It is noted also that the staff is not involved in applied research activities at a satisfactory level. The plan to organize lectures for 200 students is not adequate for the studies quality.

English literature sources are not provided in the study description and in the library there are only few books in English. More effort should be made to motivate girls to study this programme.

V. GENERAL ASSESSMENT

The study programme *Electrical and Automation Equipment* (state code – 65301T103, 653H62008) at Klaipėda 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	3
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)	4
	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

Klaipėdos valstybinės kolegijos studijų programa *Elektros ir automatikos įrenginiai* (valstybinis kodas – 65301T103; 653H62008) vertinama **teigiamai**.

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

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IV. SANTRAUKA

Programos vadyba yra geros kokybės, kaip ir bendra studijų programos sandara. Studijų programą vertina socialiniai partneriai, norintys pritraukti geriausius studentus. Kolegijos dėstytojai ir studentai turi aiškią programos ateities viziją ir yra patenkinti galėdami čia dirbti ar mokytis. Dėstytojai ir studentai noriai bendradarbiauja. Darbdaviai ir kolegija taip pat efektyviai bendradarbiauja, todėl absolventų įsidarbinimo lygis yra labai aukštas.

Dėstytojai yra atviri naujiems dalykams ir padeda silpnesniems studentams. Ši konsultacijų sistema yra atvira visiems studentams. Dėstytojai yra parengę metodinės medžiagos, kurią galima gauti bibliotekoje arba pasiekti internete.

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Programos pavadinimas yra siauresnis nei jos turinys. Kai kuriais atvejais studijų rezultatai yra pernelyg bendri ir neatspindi programos lygio. Pagrindiniai dalykai, tokie kaip matematika, yra nepakankamai pritaikyti inžinerijos specialybei, be to, reikėtų įtraukti naują discipliną „Tvari plėtra". Į fizikos laboratorijos eksperimentus reikėtų įtraukti energijos ir jutiklių principus. Reikėtų pagerinti įrangos kokybę kai kuriose laboratorijose. Pagrindiniame savianalizės tekste turi būti pateikiama daugiau specifinės informacijos. Reikėtų padidinti tarptautinį dėstytojų ir studentų mobilumą. Pastebėtina tai, kad dėstytojai yra nepakankamai įsitraukę į taikomųjų tyrimų veiklą. Planas organizuoti paskaitas 200 studentų, neadekvatus studijų kokybei.

Dalykų aprašuose nepateikiami šaltiniai anglų kalba, o bibliotekoje yra tik keletas knygų šia kalba. Reikia dėti daugiau pastangų siekiant pritraukti daugiau merginų į šią studijų programą.

III. REKOMENDACIJOS

1. Studijų rezultatai kai kur turėtų būti suformuluoti tiksliau. Jų turinys turėtų būti tikslesnis ir ne bendras, o sakiniai turėtų būti suformuluoti pagal bendrąją praktiką.
2. Matematikos disciplinos studijų turinys turėtų būti pakeistas, kad didesnis dėmesys būtų kreipiamas inžinerijai. Reikėtų dėstyti daugiau taikomosios matematikos.
3. Reikėtų dėstyti naują discipliną – „Tvari plėtra".
4. Į fizikos laboratorijos užsiėmimus turėtų būti įtraukti energijos principai ir jutikliai.
5. Disciplina „Taikomųjų tyrimų metodologija" turėtų būti dėstoma trečiaisiais studijų metais.
6. Dėstytojai turėtų labiau įsitraukti į mokslinių tyrimų veiklą.
7. Reikėtų padidinti studentų ir dėstytojų mobilumą.
8. Reikėtų patobulinti kai kurią laboratorijos įrangą.
9. Dalykų aprašuose turėtų būti nurodyti vadovėliai anglų kalba, kuriuose galima ieškoti informacijos.
10. Bibliotekoje reikėtų daugiau knygų anglų kalba.
11. Administracija turėtų dėti daugiau pastangų siekiant pritraukti daugiau merginų į šią studijų programą.

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