



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO
STUDIJŲ PROGRAMOS
KOMPIUTERIŲ INŽINERIJA
(valstybinis kodas - 612H69001)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF COMPUTER ENGINEERING
(state code - 612H69001)
STUDY PROGRAMME

at VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

Experts' team:

1. **Prof. Dr. Edmund Handschin (team leader)**, *academic*,
2. **Prof. Dr. Tadeusz Skubis**, *academic*,
3. **Prof. Dr. Toomas Rang**, *academic*,
4. **Doc. Dr. Dainius Balbonas**, *academic*,
5. **Mr. Rytis Koncevičius**, *students' representative*.

Evaluation coordinator -

Mr. Edgaras Baumila

Išvados parengtos anglų kalba
Report language – English

Vilnius
2015

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Kompiuterių inžinerija</i>
Valstybinis kodas	612H69001
Studijų sritis	Technologijos mokslų studijų sritis
Studijų kryptis	Elektronikos ir elektros inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (4 metai)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Kompiuterių inžinerijos bakalauras
Studijų programos įregistravimo data	2003-05-19

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Computer Engineering</i>
State code	612H69001
Study area	Technological sciences
Study field	Electronics and electrical engineering
Type of the study programme	University studies
Study cycle	First
Study mode (length in years)	Full-time (4 years), part-time (6 years)
Volume of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Computer Engineering
Date of registration of the study programme	19 th May 2003

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

CONTENTS

I. INTRODUCTION.....	4
1.1. Background of the evaluation process	4
1.2. General.....	4
1.3. Background of the HEI/Faculty/Study field/ Additional information	4
1.4. The Review Team.....	5
II. PROGRAMME ANALYSIS	6
2.1. Programme aims and learning outcomes.....	6
2.2. Curriculum design	7
2.3. Teaching staff	8
2.4. Facilities and learning resources	9
2.5. Study process and students' performance assessment.....	10
2.6. Programme management	10
III. RECOMMENDATIONS.....	12
IV. SUMMARY	13
V. GENERAL ASSESSMENT	15

I. INTRODUCTION

1.1. Background of the evaluation process

The evaluation of on-going study programmes is based on the **Methodology for evaluation of Higher Education study programmes**, approved by Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC).

The evaluation is intended to help higher education institutions to constantly improve their study programmes and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) *self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI)*; 2) *visit of the review team at the higher education institution*; 3) *production of the evaluation report by the review team and its publication*; 4) *follow-up activities*.

On the basis of external evaluation report of the study programme SKVC takes a decision to accredit study programme either for 6 years or for 3 years. If the programme evaluation is negative such a programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas are evaluated as “very good” (4 points) or “good” (3 points).

The programme is **accredited for 3 years** if none of the areas was evaluated as “unsatisfactory” (1 point) and at least one evaluation area was evaluated as “satisfactory” (2 points).

The programme is **not accredited** if at least one of evaluation areas was evaluated as "unsatisfactory" (1 point).

1.2. General

The Application documentation submitted by the HEI follows the outline recommended by the SKVC. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site-visit:

No.	Name of the document
1	List of Vilnius Gediminas Technical University library electronic information resources

1.3. Background of the HEI/Faculty/Study field/ Additional information

The bachelor degree programme in Computer Engineering has been carried out at Vilnius Gediminas Technical University since 2003. Alongside the bachelor level programme

VGTU also has the master level study programme in Computer Engineering. This current evaluation report overviews the bachelor level study programme of Computer Engineering. The graduates of this Study Programme receive the Bachelor of Computer Engineering degree. It should be mentioned that the Computer Engineering Bachelor Study Programme has been evaluated previously by an international expert group consisting of Prof. Dr. Toomas Rang (group leader), Prof. Dr.-Eng. Tilmann Krueger, Doc. Dr. Sergey Olegovich Shaposhnikov, Prof. Dr. Dangirutis Navikas and Monika Simaškaitė (student) in 2012.

The structure of VGTU is formed of faculties, departments, research and training laboratories, research and academic institutes and centres, a library, publishing office, administration and other departments. The Departments are responsible for independently solving academic and study problems, made known by the University and the Faculty, and reaching intended goals. Departments are managed by The Heads of the Department, which are researchers of a corresponding educational field, and must meet established requirements. The most important unit for study organization is the Faculty and Academic Institute or Centre, acting under the rights of a Faculty. The Faculty is managed by the Dean. He is aided by the Dean's office, which includes the Dean, Head of Faculty Council, Vice-Deans and Heads of Departments. There are three Vice-Deans in the Electronics Faculty: for first cycle programmes, second cycle programmes and science.

1.4. The Review Team

The review team was completed according *Description of experts' recruitment*, approved by order No. 1-01-151 of Acting Director of the Centre for Quality Assessment in Higher Education. The Review Visit to HEI was conducted by the team on 10th November, 2015.

- 1. Prof. Dr. Edmund Handschin (team leader)**, *professor emeritus at Technical University of Dortmund, Germany;*
- 2. Prof. Dr. Tadeusz Skubis**, *professor at Silesian University of Technology, Faculty of Automation, Electronics and Informatics, Poland;*
- 3. Prof. Dr. Toomas Rang**, *professor at Tallinn University of Technology, Faculty of Information Technology, Estonia;*
- 4. Prof. Dr. Dainius Balbonas**, *Head of the Electronics and Electrical Engineering department at Šiauliai University, Lithuania.*
- 5. Mr. Rytis Koncevičius**, *students' representative from Vytautas Magnus University.*

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

The Study Programme aims and learning outcomes are well defined, and comply with the engineering studies aims, gained knowledge and acquired cognitive, practical and transferable skills indicated in the Regulation of the study field of general technological sciences (engineering). Access to the Study Programme aims and key learning outcomes are available on the VGTU website. The information is accessible to the public. Both aims and learning outcomes are publicly accessed on <https://medeine.vgtu.lt/programos/programa>.

The study outcomes are clearly formulated in four groups: knowledge, understanding, special skills, and general abilities. The Study Programme outcomes are comparable with similar European Study Programs and correspond to the Study Programme aims. Complexity level of the learning outcomes corresponds to qualification requirements described in national and EU documents. The content of the programme regards current performances in electronics and information technologies. Programme curriculum is actual, up to date and comparable with other similar curriculums implemented in other universities.

The previous evaluation report stated some weaknesses and remarks about the quality of programme aims and learning outcomes. For example, there was inconsistency between aims of the Study Programme listed in the SER and the profile of the Study Programme listed on the website. The inconsistency has been disappeared. Another weakness has been cited about the missing systematic feedback from industry on the aims and expected learning outcomes. Today the situation has been improved and regular feedback algorithm from the social partners and stake-holders has been elaborated. For example, after the discussions of the Computer Engineering study programme Committee with social partners (students, employers and teachers) the new subject ELKIB14701 Computer Networks and Security was introduced for the Embedded Computer specialization instead of subject ELKIB11814 Microcontroller interfaces. The knowledge of Microcontroller interfaces is provided in subject ELKIB11608 Computer Communications. Additionally, the contents of module ELKIB11813 Embedded Computer Design was renewed and the new teacher was invited to lecture this module.

Additionally, along the discussions with the SER composing team the content of SER table 2.4. (in the SER the information presented in the table did not give clear understanding of taken measures), has been clarified and the improvement actions in this particular case have been described orally to the evaluation team, e.g. starting from 2012 the regular discussions and meetings with the companies (JSC “Teltonika”, JSC “Tamona”, etc.) take place. Companies also offer more focused topics for the student course projects and thesis. Every year the representatives of employers come to students and organize the discussions.

Nevertheless, the third weakness concerning the students' awareness of the information about the learning outcomes of the study programme seems not to be improved that significantly. During the discussions of the expert group with students the evaluation team concludes that still not all of the students seem to have clear picture about the aims and learning outcomes of the Study Programme. Despite this minor flaw, the evaluation team confirms that the learning outcomes have been significantly improved and managed to reach a very good level.

2.2. Curriculum design

The curriculum design meet legal requirements specified in "Study cycle designs" approved by Order of LR Minister of Science and Education, and in international documents. They are complementary, not redundant and without repetitions. The Study Programme consists of 240 ECTS credits over 4 years for full time students. The balance of modules across the semesters and the development of the Study Programme from the first to the final year are appropriate and consistent with the type and level of studies. Computer Engineering SP consists of two target parts. Part of studies of general academic subjects includes higher education subjects of philosophical outlook and general scholarship that are not directly related to the content of Computer Engineering studies. It consists of 15 credits. Part of study area subjects includes theoretical and professional subjects, is mandatory for all study programmes in the field of electronics and electric engineering and provides knowledge and skills that are necessary to be awarded bachelor's degree in electronics and electric engineering (183 credits). Volume of specialization is 42 credits. SP of Computer Engineering provides 2 specializations: Embedded Computers and Computer Technology. The specialization programme starts from the 5 semester. In semester 8 there is provided a complex term project of 5 credits. While preparing this project, a student consults some university teachers, the project includes some subjects. A complex problem is formulated in the project.

The Study Programme learning outcomes are clearly associated with each module and each module has a very clear set of learning outcomes. The content of the programme regards current performances in electronics and information technologies, thus as previously mentioned the programme content is actual for the labour market and also comparable with other curriculum designs used in external universities.

The previous evaluation report made two concrete remarks about the curriculum design. The first remark about the increase of the possibility to offer to the students more practical skills has been improved reorganizing the algorithm and content of practices in study programme, but it seems still be the problem for the students, because the discussions with the students with the evaluation team we came to the conclusion that some of the students complying on insufficient

volume of practical activities during the studies. The second remark seems to be taken into account fully and the system for development and up-grade of the curriculum has been put on a wider base compared the situation evaluated in 2012. For example, the companies offered topics for the student course projects and thesis of the Computer Engineering study programme. Thus students' course projects and thesis are applied practically and are useful for the companies. Every year the representatives of employers come to students and organize the discussions. Also already earlier mentioned courses like Computer Networks and Security was introduced and additionally the course titled Embedded Computer Design was renewed.

However, on the SER (page 12) for example it is stated that there are 183 credits common for all four study programmes (Automation, Computer Engineering, Electronics engineering, and Telecommunications engineering) run by the faculty, and only 42 credits are foreseen for specialization. The question rises, whether it is reasonable to keep running all these different study programmes independently taking into account the relatively small number of students. Also on the same page the time-load of the students has been stated (6400 hours), from which 2484 h are so called face-to-face activities (contact hours). The evaluation panel could not detect existing systematic control mechanisms of the individual studies of students, because it might be difficult to access and supervise their individual working hours, to verify whether the amount of individual work seems to be is reasonable in volume.

2.3. Teaching staff

Qualifications of the teaching staff, both scientific and didactic, are high enough to ensure declared learning outcomes. The qualifications are based on own research performed and long-time teaching at university. Evidence is provided regarding the training and development opportunities given to the academic staff. These include the provision of training courses, encouragement to publish scientific work, and opportunities for international visits. There is an improved international involvement of some of the academic staff over ERASMUS exchange schematics or specific projects, e.g. Prof. A. Baškys (Fraunhofer Stuttgart, Germany and the Aveiro University, Portugal), V. Barzdenas and J. Charlamov (University of Rochester, USA), etc.). The academic-staff, as reported by the students, encourages creativity amongst the students through projects, hobby work, involvement in research, and final thesis.

The knowledge level of foreign language (English) amongst the academic staff is varied, but seems to be improved compared to the previous evaluation process. The second remark concerning the ability of teaching staff to cover all aspects of internationally recognised research directly related to the computer engineering has slightly improved (number of international projects have been increased and the research topics have been widened as well).

The age structure has been improved and minimal improvement in international activity can be observed as well. The science background is enhanced by obligatory scientific work, comprising 30% of total working time for academic teachers. Methodological approach is also developed by continuous and close contact with students, e.g. dr. Rimantas Simniškis from Centre for Physical Sciences and Technology provided discussions with first course students. During the meetings with industry representatives the social partner from the company producing laboratory equipment for educational institutions stated that he had been involved in part-time activities, also in the training process of students.

2.4. Facilities and learning resources

Clear evidence is provided to indicate that the facilities and equipment provided to the students on this Study Programme is appropriate to the level of this particular Study Programme. The tour of facilities during the evaluation visit demonstrated many new examples of support for the students, such as the embedded systems being used, and the availability of new equipment (measurement devices and laboratory kits) in the study laboratories has significantly improved. Clear plan of facilities upgrade has been presented (including the movement into new buildings in Vilnius Science Valley). There are 12 classrooms of different size in the current building. Classrooms intended for giving lectures are equipped with stationary multimedia equipment and computers (e.g. for students there is 270 computers in laboratories, and this quantity is very high in relation to students' number). There are also 20 world bibliographic databases are accessible. Access to resources is easy and professionally arranged. However, currently there is no IEEE subscription as it was cancelled this year and they should collaborate with other higher education institutions in order gain the access again, because this database is very important for engineering programmes.

The course books are also available to students in the Departments. Course-work materials produced by teaching staff is available in several forms.

The previous evaluation report made two strong remarks about the facilities and learning resources, which were – first that the process of upgrading hardware and software should be transparent and planned for up to 5 years and secondly that despite the relatively high level of laboratory equipment (compared to some other Lithuanian Universities), the equipment could be further improved by acquiring more up-to-date instruments and devices, e.g. by obtaining EU and industrial grants. The evaluation team can declare that the positive changes have been taken place observed on base of the SER and during the on-site visit. Clear numbers of finances have been shown for investments of laboratory infrastructure for the study

programme and additional new laboratory kits have been implemented. The department has a clear vision for upgrading students' labs.

2.5. Study process and students' performance assessment

Admission to the Computer Engineering Study Programme is conducted during the general admission following standard procedures in Lithuania. The only admission requirement is secondary education. Students are admitted with a range of competition grades. Admission to the Computer Engineering study programme seems to be stress-free and easy, there are no entrance examinations. Information on admission to the study are easy accessed by Internet and different publications, or directly in admission commission. Students of Computer Engineering have the opportunity to study part of subjects abroad. The basis of the international education are agreements signed by the VGTU authorities with 37 European and 7 Turkish universities (Erasmus programme), as well as with the South Korea.

The University ensures an adequate level of academic and social support. The University student support system is functioning. Possibilities for studies according to the individual study plan are provided for students with good academic performance or in special circumstances. Meeting with the assessment team showed that most of the graduates are satisfied with the study results and with the job opportunities. About half of the graduates continue their studies at the Master level of Computer Engineering.

The previous evaluation report made three remarks about the study process and students' performance assessment concerning low number of applications, high drop-out rate and small motivation of students participating in Erasmus exchange. The situation has been improved significantly concerning the drop-out rate. Today it has decreased and stabilized. The other two remarks are existing also today and in a way the university faces with the *force major* situation here, because there are very few positive activities available for the university to improve the situation taking into account the financial resources available not only at the university, but in the country generally for the studies and R&D activities.

2.6. Programme management

This was the most strongly criticized part of the evaluation report in 2012 (all together 6 weaknesses and remarks have been mentioned). On base of this SER a lot of improvements have taken place, however not all of them have been handled with the same quality, e.g. internationalization strategy is still weak, the lack of coordination between the similar study programs still exists, etc.

The evaluation team states positively that the making decisions and the monitoring of the implementation are adequately established, both at level of the University and the Faculty. The system is clear and consistent. The previous evaluation report stated that the role and tasks of the Study Programme Committee (SPC) were not well elaborated. Today we can state that SPC is functioning on base of clear plan and the tasks of their activities are clearly formulated and the social partners are participating in the work of SPC in a more visible way. Information about the development of the Computer Engineering study programme is found in the university information system, covering all university activities. The management process is computerized and currently updated. The information is used for plan and decision making, regarding to admission plans, students' admission, study and teaching plans, teaching loads distribution, evaluation of study results, diploma registration, distribution of scholarships and dormitories, different statistics students enrolment, scheduling.

The panel would like to add a comment regarding the preparation of the Self Evaluation Report for the future. It must be noted that the document "2015 Guidelines for Study Programmes Evaluation in SKVC" states that the SER volume should not exceed 30 pages. The SER of VGTU first level study programme in Computer Engineering was 47 pages long and includes appendixes on about more than 500 pages. The Self Evaluation Report would be better prepared by carefully reviewing the guidelines for study programme evaluation

Responsibilities of decision making and monitoring the implementation of the Study Programme are clearly allocated and by the SER administratively properly developed. The system for collecting feedback from students is developed in a traditional way: at the end of semester the student answers the questions and evaluates the study Course content, Course material presentation (its clarity, forms of presentation, accessibility, etc.), teaching methods, teachers' competence and communication skills, and provides proposals for the improvement of the Course quality. However, the meeting with students revealed still the lack of publicity on implementation of feedback results. Thus, the internal quality assurance system should be further improved and made more open for the teaching staff, students and employers. All stakeholders should be informed of formal possibilities about getting involved in the quality assurance process and encouraged to take part, e.g. the companies contribute to improve of the study base, like JSC "Teltonika", JSC "Šviesos konversija", Center for Physical Sciences and Technology, STMicroelectronics, and Texas Instruments. All of them donate electronic boards for students' laboratories and participate in activities regarding the final projects.

III. RECOMMENDATIONS

Comparing the recommendations from the previous evaluation report the undertaken efforts by the VGTU faculty has been deleted many of weaknesses today or improved many of them as well, but some recommendations a valid still today. Unfortunately, some of them conclude directly from the underfinancing of the higher education generally. The evaluation team agreed to give in following recommendations:

1. The internal quality assurance system should be further developed and the feedback should be made more open for the teaching staff, students and employers. All stakeholders should be informed of formal possibilities about getting involved in the quality assurance process and encouraged to take part.
2. The Self Evaluation Report should be better prepared by carefully reviewing the guidelines for study programme evaluation and preparation of the SER.
3. The students' awareness of the information about the learning outcomes of the study programme seems not to be improved significantly. During the discussions between the expert group and the students, it was concluded that still not all of the students seem to have a clear picture about the aims and learning outcomes of the Study Programme. So, the positive and proactive handling of students should be improved from the side of the university in the future.
4. Taking into account that there are 183 credits common courses for three study programmes run by the faculty, and only 42 credits are foreseen for specialization it should be discussed, whether it is reasonable to keep running all these three different study programmes independently taking also into account the relatively small number of students. So, the consolidation of study processes should continue also in the future.
5. The evaluation team could not detect existing systematic control mechanisms for the individual working hours (additional individual work after classroom activities) of students. Therefore, the evaluation team sees the need for development of a clear and transparent system in the future.
6. The possibilities of improvement of language skills of students and teachers should be supported also in the future. Also attractive and proactive measures for increasing internationalization, for example through students' participation in mobility Erasmus Exchange processes, must be adopted.

IV. SUMMARY

The VGTU Computer Engineering (BA) study programme aims and learning outcomes are based on a clear modular description of the learning contents. The aims and learning outcomes of the study programme are publicly available and there is good coverage of the programme learning outcomes across the modules and each module covers a good range of programme learning outcomes. The recommendations made by the previous evaluation team, are taken into account and fully implemented. One minor weak point was observed in a small inconsistency between the aims of the programme listed in the SER and the spectrum of the industry in the country. This seems to be more general problem in Lithuania, because similar remark has been done in several evaluation cases earlier. Several initiatives have been launched and running outside the faculty that could help improving the forecast of the study programme graduates demand and communication with social partners and graduates. These are national map of professional qualifications run by the Lithuanian Government and the development of Quality Assurance System at the VGTU. The recommendations made by the previous evaluation team have been elaborated and in major cases implemented as well.

The previous evaluation report was indicating on specific weaknesses concerning the staff, e.g. research activities were very unequally distributed between the members of the teaching staff; and the knowledge of foreign language (English) amongst the academic staff was varied, which could in opinion of previous evaluation team hinder their use of English based texts when preparing material for students. Also there was an indication on age problems of the staff as well. The first and lastly named weaknesses are clarified, e.g. there is a clear policy for appointing new members of staffs and retiring procedure is clear, and the research volume and measures for up-grading of English knowledge of the academic staff have been developed and the results are already seen. Unfortunately, the mobility activities are unequally distributed among the teaching staff and there is still too low International activity related to research and Erasmus Exchange.

Regarding programme management, strong measures have been adopted during the last three years. There is a clear policy for appointing new members of staffs and retiring procedure is clear. There is a good awareness for the necessity to merge and combine different faculties and study programs. The budget of the faculty is a good basis for its further developments.

On base on results of discussions and meeting during the onsite visit the evaluation team found strong improvement in laboratory devices and test-kits for students compared with the situation, compared with the previous evaluation. Especially should be mentioned the improved financial situation at the university generally, which lets VGTU to strengthen the

bachelor study programme on Computer Engineering in many aspects, especially in active involvement of students in research activities of the teaching staff, in upgraded study facilities and successful activities in the field of embedded systems teaching and training as compared to the previous review.

However, the evaluation team indicates on specific weaknesses as well. There is not sufficiently clear explanation about the differences between contact hours and individual learning process of the students and the evaluation team could not detect any existing systematic control mechanisms of the individual studies of students. So, the evaluation team concluded that the assessment of the individual work done by the students is weakly elaborated. The SER does not explain the need of large overlap of courses between similar study programmes at the faculty, which probably indicates a lack of systematic and well defined procedure of feedback from the alumni. The social partners attending the meeting during the on-site visit were not involved in the preparation of the SER and the previous evaluation report form 2012 has not been discussed with the students. The internationality of the teaching staff is still not on a good level and the ERASMUS commitment by students is still low.

For the conclusion, the evaluation team makes the following general remarks about the strengths of the VGTU Computer Engineering SP. The SP is clearly structured with coherent modules and the SP is run by the well qualified teaching staff. The teaching staff has increased its international profile since the last evaluation in 2012, but these efforts should be continued. Substantial efforts are undertaken to modernize infrastructure of the teaching environment and the laboratories have been markedly improved compared to the previous review in 2012. The satisfaction of students, graduates, and industrial representatives with the SP is high which indicates on trust of industry creating some years ago the electronic fund supporting the students' creativity in the CE studies. The weaknesses discovered in previous evaluation report in programme management has been overcome, the department and faculty have good visibility through internet and there is a trustful cooperation between students and teachers.

V. GENERAL ASSESSMENT

The study programme Computer Engineering (state code – 612H69001) at Vilnius Gediminas Technical University is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an area in points*
1.	Programme aims and learning outcomes	4
2.	Curriculum design	3
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	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.

Grupės vadovas: Team leader:	Prof. Dr. Edmund Handschin
Grupės nariai: Team members:	Prof. Dr. Tadeusz Skubis
	Prof. Dr. Toomas Rang
	Doc. Dr. Dainius Balbonas
	Mr. Rytis Koncevičius

**VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO PIRMOSIOS PAKOPOS
STUDIJŲ PROGRAMOS *KOMPIUTERIŲ INŽINERIJA* (VALSTYBINIS KODAS –
612H69001) 2015-12-17 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-359 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino technikos universiteto studijų programa *Kompiuterių inžinerija* (valstybinis kodas – 612H69001) 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

VG TU teikiamos bakalauro studijų programos *Kompiuterių inžinerija* tikslai ir numatomi studijų rezultatai yra pagrįsti aiškiu studijų turinio aprašu pagal modulius. Studijų programos tikslai ir numatomi studijų rezultatai yra viešai skelbiami, aiškiai nurodyti numatomi studijų programos rezultatai pagal modulius, kiekvienas modulis apima nemažai numatomų

studijų rezultatų. Į rekomendacijas, pateiktas ankstesnio vertinimo ekspertų, atsižvelgta – jos visos įgyvendintos. Pastebėtas vienas ne itin svarbus trūkumas – nedidelis savianalizės suvestinėje nurodytų programos tikslų ir šalies pramonės spektro neatitikimas. Atrodo, kad tai daugiau bendra Lietuvos problema, nes panaši pastaba padaryta ir anksčiau atliekant keletą kitų vertinimų. Pradėtos kelios iniciatyvos, įgyvendinamos ne fakultete, kurios galėtų padėti geriau prognozuoti šios studijų programos absolventų paklausą ir ryšius su socialiniais partneriais bei absolventais. Tai šalies profesinių kvalifikacijų žemėlapis, kurį *rengia* Lietuvos Vyriausybė, ir VGTU kokybės užtikrinimo sistemos tobulinimas. Ankstesnio vertinimo rekomendacijos detalizuotos ir daugelis jų įvykdyta.

Ankstesnėse vertinimo išvadose nurodyti konkretūs trūkumai, susiję su dėstytojais, pvz., labai nevienodas dėstytojų dalyvavimas mokslinių tyrimų veikloje, skirtingas akademinio personalo užsienio (anglų) kalbos žinių lygis, dėl kurio, kaip mano ankstesnio vertinimo ekspertai, jiems gali būti sunku naudotis angliškais tekstais rengiant medžiagą studentams. Taip pat nurodomos darbuotojų amžiaus problemos. Visi išvardyti trūkumai yra pašalinti, pvz., yra aiški naujų darbuotojų paskyrimo politika ir aiški išleidimo į pensiją procedūra, nustatyta tyrimų apimtis ir parengtos akademinio personalo anglų kalbos žinių gerinimo priemonės, ir rezultatai jau matomi. Dėstytojų judumo galimybės, deja, nevienodos, tarptautinės veiklos, susijusios su moksliniais tyrimais ir *Erasmus* mainų programa, lygis vis dar žemas.

Per paskutiniuosius trejus metus priimtose griežtos priemonės, susijusios su programos vadyba. Yra aiški naujų darbuotojų paskyrimo politika ir aiški išleidimo į pensiją procedūra. Gerai suvokiama, kad būtina sujungti skirtingus fakultetus ir studijų programas. Fakulteto biudžetas yra geras pagrindas tolesnei fakulteto plėtrai.

Iš pokalbių, vykusių per vizito metu surengtus susitikimus, ekspertų grupė sužinojo, kad labai pagerėjo laboratoriniai prietaisai ir studentams skirti tyrimų rinkiniai, palyginti su padėtimi, kuri buvo atliekant ankstesnį vertinimą. Ypač reikėtų paminėti, kad pagerėjo viso universiteto finansinė padėtis; tai suteikia VGTU galimybę sustiprinti bakalauro studijų programą *Kompiuterių inžinerija* daugeliu aspektų, ypač labiau įtraukti studentus į dėstytojų vykdomus mokslinius tyrimus, atnaujinti mokymo priemones ir sėkmingai vykdyti veiklą, susijusią su įtvirtintomis mokymo bei lavinimo sistemomis, palyginti su tuo, kas buvo atliekant ankstesnį vertinimą.

Tačiau ekspertų grupė nurodo ir konkrečius trūkumus. Nėra pakankamai paaiškinta, kuo skiriasi kontaktinės valandos ir studentų savarankiško mokymosi procesas, ekspertų grupei neteko pastebėti, kad egzistuotų sistemingi studentų savarankiškų studijų kontrolės mechanizmai. Taigi ekspertų grupė padarė išvadą, kad studentų savarankiško darbo vertinimas yra silpnai parengtas. Savianalizės suvestinėje nepaaiškinta, kodėl fakultete vykdomų panašių

studijų programų dalykai turi taip labai dubliuotis; tai tikriausiai rodo, kad nėra metodiškos ir aiškiai apibrėžtos alumnų grįžtamojo ryšio teikimo procedūros. Socialiniai partneriai, per vizitą dalyvavę susitikime, nebuvo įtraukti į savianalizės suvestinės rengimo procesą, o ankstesnio, 2012 m. vertinimo išvados nebuvo aptartos su studentais. Dėstytojų tarptautiškumo lygis vis dar nepakankamas, o studentai vis dar mažai dalyvauja ERASMUS programoje.

Baigdama ekspertų grupė pateikia šias bendrąsias pastabas apie VGTU studijų programos *Kompiuterinė inžinerija* stiprybes. Šios studijų programos sandara yra gera, moduliai išdėstyti nuosekliai, programą vykdo kvalifikuoti dėstytojai. Nuo paskutiniojo vertinimo, atlikto 2012 m., dėstytojai padidino savo tarptautiškumą, bet šios pastangos neturėtų nutrūkti. Labai stengiamasi modernizuoti studijų aplinkos infrastruktūrą, labai patobulėjo laboratorijos, palyginti su ankstesnio vertinimo metu buvusiu padėtimi. Studentai, absolventai ir pramonės atstovai yra labai patenkinti šia studijų programa, ir to patvirtinimas yra elektroninio fondo, remiančio *Kompiuterinės inžinerijos* studentų kūrybiškumą, įsteigimas. Su programos vadyba susijusios silpnybės, nurodytos ankstesnio vertinimo išvadose, įveiktos, katedra ir fakultetas gerai matomi internete, studentų ir dėstytojų bendradarbiavimas pagrįstas pasitikėjimu.

<...>

III. REKOMENDACIJOS

Reaguodami į ankstesnio studijų programos *Kompiuterių inžinerija* vertinimo išvadose pateiktas rekomendacijas VGTU dėstytojai pašalino nemažai trūkumų, daug ką patobulino, bet kai kurios rekomendacijos vis dar neįgyvendintos. Deja, kai kurie trūkumai yra tiesiogiai susiję su nepakankamu aukštojo mokslo finansavimu apskritai. Ekspertų grupė pritarė šioms rekomendacijoms:

7. Turėtų būti toliau tobulinama vidinio (programos) kokybės užtikrinimo sistema, grįžtamas ryšys turėtų būti labiau prieinamas dėstytojams, studentams ir darbdaviams. Visi socialiniai dalininkai turėtų būti informuojami apie oficialias galimybes dalyvauti kokybės užtikrinimo procese ir skatinami dalyvauti.
8. Savianalizės suvestinė turėtų būti rengiama kruopščiau, atsižvelgiant į studijų programų vertinimo ir savianalizės suvestinių rengimo gaires.
9. Atrodo, kad su informacija apie šios studijų programos numatomus rezultatus studentai yra susipažinę ne ką daugiau nei anksčiau. Iš pokalbių su studentais ekspertų grupė padarė išvadą, kad dar ne visi studentai tiksliai žino šios studijų programos tikslus ir numatomus studijų rezultatus. Todėl ateityje Universitetas turėtų pagerinti darbą su studentais šioje srityje.

10. Atsižvelgiant į tai, kad trijų fakultete vykdomų programų bendrieji dalykai vertinami 183 kreditais ir tik 42 kreditai yra numatyti specializacijai, reikėtų apsvarstyti, ar racionalu atskirai vykdyti visas šias tris skirtingas studijų programas, kai dar ir studentų yra palyginti nedaug. Taigi ateityje reikėtų tęsti studijų proceso konsolidavimą.
11. Ekspertų grupė nepastebėjo, kad būtų taikomi sistemingos studentų savarankiško darbo (papildomas individualus darbas po *paskaitų*) kontrolės mechanizmai. Todėl ekspertai mano, kad ateityje reikia sukurti aiškia ir skaidrią sistemą. Be to, ateityje reikėtų didinti studentų ir dėstytojų kalbos įgūdžių gerinimo galimybes. Dar būtina aktyviai imtis tinkamų priemonių tarptautiškumui didinti, pavyzdžiui, skatinti studentų dalyvavimą *Erasmus* judumo programose.

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)