STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Šiaulių universiteto

STUDIJŲ PROGRAMOS *INFORMATIKA (valstybinis kodas - 612I10008)* VERTINIMO IŠVADOS

EVALUATION REPORT OF *INFORMATICS* (*state code - 612I10008*) STUDY PROGRAMME

at *Šiauliai University*

Experts' team:

1. **Prof. Dr. Liz Bacon (team leader)** *academic,*
2. **Prof. Dr. Helmar Burkhart,** *academic,*
3. **Prof. Dr. Gerald Steinhardt,** *academic,*
4. **Mr. Vaidas Repečka,** *social partner,*
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Evaluation coordinator –

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Išvados parengtos anglų kalba
Report language – English

Vilnius
2016

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	***Informatika***
Valstybinis kodas	612I10008
Studijų sritis	Fiziniai mokslai
Studijų kryptis	Informatika
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirma
Studijų forma (trukmė metais)	Nuolatinė - 4 metai, ištęstinė – 5,5 metai
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos bakalauras
Studijų programos įregistravimo data	1999-04-23 Įsak.Nr. 560

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	***Informatics***
State code	612I10008
Study area	Physical Sciences
Study field	Informatics
Type of the study programme	University studies
Study cycle	First
Study mode (length in years)	Full-time (4), Part-time (5,5)
Volume of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Informatics
Date of registration of the study programme	23/04/1999, Order of the Minister of Education and Science of LR No. 560

CONTENTS

I. INTRODUCTION

I.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).

I.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	Thesis marking criteria

I.3. Background of the HEI/Faculty/Study field/ Additional information

Šiauliai University provides all three cycles of qualifications across a range of disciplines however it does not have a PhD provision in the field of informatics. The university has recently been reorganised and is now composed of: three faculties, 2 institutes, library, Department of Studies and other divisions. The main self-government and management authorities at the University are the Council, the Senate, the Rector, and Students' Representative Office. All structural academic

divisions are guided by the regulations approved by ŠU Senate, ŠU Statute, ŠU Strategic Plan of Development for 2009-2020, Law on Higher Education and Research of the Republic of Lithuania, as well as by other legal documents of the Republic of Lithuania and the European Union.

The bachelor study programme in Informatics is managed by the Informatics, Mathematics and E-Studies Institute of Šiauliai University (IMESI) which is is composed of 3 departments: Software Systems, Computer Systems and Mathematics. It also includes the E. Studies Centre and Information Systems Department. All the departments of the Institute are now part of the Faculty of Technologies, Physical and Biomedicine Sciences. The two cycles of studies at the Institute are as follows: bachelor (Informatics, Information Technologies, Mathematics and Mathematics of Finances) and master (Informatics and Mathematics). The implementation of Informatics bachelor study programme is monitored by the Department of Software Systems (former the Department of Informatics) and has been evaluated twice before, and accredited for a period of three years on each occasion. This is the third evaluation.

I.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 *05/04/2016.*

1. **Prof. Dr. Liz Bacon (team leader)** *University of Greenwich, Deputy Pro Vice-Chancellor, Faculty of Architecture, Computing and Humanities, Professor of Software Engineering United Kingdom of Great Britain and Northern Ireland.*
2. **Prof. Dr. Helmar Burkhart,** *Basel University, Full Professor, Switzerland.*
3. **Prof. Dr. Gerald Steinhardt,** *Vienna University of Technology, Full Professor, Austria.*
4. **Vaidas Repečka, *UAB Minatech Co-Founder, Director, Lithuania.***
5. **Vytautas Mickevičius,** *PhD student of Informatics study programme, Vytautas Magnus University, Lithuania.*

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

This is an important programme for the market given the high demand for IT professionals in Lithuania and internationally. The subject learning outcomes are satisfactory, reflect a fairly traditional view of computer science and are appropriate for the title of the academic programme, the key aim as defined in the SER (p 5) being to prepare qualified specialists of informatics focussing on fundamental knowledge, the development of a range of software types in the context of legal, social, ethical and saftey issues and finally to be able to adapt to change and be lifelong learners. The learning outcomes are published on the university website and cover five areas of activity as outlines in the SER p. 6: knowledge and its application, research abilities, special abilities, social abilities, and personal abilities. They also meet the needs of both the local and international IT labour markets, many local companies also being international organisations. The students are all clear about where to find them.

There are however two areas where the learning outcome definitions could be strengthened. Firstly in the area of legal responsibilities as IT professionals. Whilst a legal context is identified in the aims, there is limited mention in the actual learning outcomes and only referenced in relation to documentation. The panel recommends that, in common with European accreditation criteria see http://www.eqanie.eu/media/Euro-Inf%20Framework%20Standards%20and%20Accreditation%20Criteria%20V2015-10-12.pdf , the learning outcomes of the study programme should educate students in their legal responsibilities such as data protection, copyright laws etc. The second area relates to the implementation of the learning outcomes in the Bachelor thesis. Whilst the practical work the students actually do for the thesis appear to be appropriate, the analytic parts of their work (as evidenced by the written theses reports) are too short and lack depth. The students are also not setting their work in an appropriate scientific context and referencing relevant academic and scientific literature. Most theses reports tend to cite software guides which have helped the students solve particular practical problems during the software development process and not academic journals, and this needs to change in order to meet international standards. As a result of these two issues, the review team felt that the marking of the theses were too high. A similar conclusion was reached in the previous two evaluations of 2010 and 2013, but significant changes required had not been made.

2.2. Curriculum design

The curriculum meets the Lithuanian legal acts. For example, the programme is 240 ECTS credits in total spread over 4 years' full-time study. The study field subjects account for 171 ECTS credits (165 being the minimum required) and general university subjects are 24 ECTS credits (15 being the minimum required). The Bachelor thesis is 12 credits which meets the minimum threshold required and students study between 5 and 7 subjects per semester (7 being the maximum allowed).

The subjects identified for each year of the study programme are appropriate and in general, the curriculum meets the learning outcome as defined, and is broadly consistent with degrees found elsewhere in Europe. A range of teaching methods are employed on the programme including lectures, self-study and practical laboratory work. Teaching and learning is supported through the Moodle Virtual Learning Environment and includes the use of modern technologies such as video conferencing with Adobe Connect which supports distance learning delivery in at least 80% of the subjects. An example of good practice is the annual meeting in March with social partners (employers, alumni etc.), students and managers to discuss curriculum issues and plan for changes, in addition to more ad hoc conversations throughout the academic year. This formal meeting allows all stakeholders to hear each other's thoughts and debate compromise solutions where appropriate which is good. An example of changes which have led to updates in the curriculum, at the suggestion of employers, was the inclusion of a new subject on smart device programming. Employment rates are also good, with 91.6% of students being employed within 6 months of graduation and 50% being employed on their day of graduation.

The programme offers three specialisations although due to numbers they may not all run in any one academic year, each covering 33 ECTS credits. The number of students is rather small, and both the review panel and the employers felt that a more general, wider computer science education, would better serve the students, reduce the risk of specialising in an area no longer relevant and provide a wider range of careers for students on graduation. A second reason that employers were recommending this change is that the field of informatics changes very quickly and it can be hard to predict specialisations required of the market several years. Hence so, a broader computer science education providing additional underpinning theory and skills could support a wider range of careers on graduation.

The ACM/IEEE Curriculum Guidelines from 2013 (http://www.acm.org/education/CS2013-final-report.pdf) introduced new knowledge area. For example the basics of concurrency and parallelism

should now be taught at the Bachelor level *("Understanding parallel processing is becoming increasingly important for computer science majors and learning such models early on can give students more practice in this arena.").* We recommend to integrate basic elements (parallel algorithms, concurrent data structures) early in the curriculum, for example in the Algorithms and Data Structure course.

Another area for improvement is the topic of security. Whilst it is referred to in various contexts in the learning outcomes, it was clear from the discussion with the students that only those on a specific specialisation had some knowledge of the topic, the others appeared to be unfamiliar with the subject and employers also expressed concern that the volume of security in the study programme was insufficient. The Programme Study Committee may find it useful to refer to European accreditation recommendations on security content for non-security specialist informatics degrees. http://www.eqanie.eu/media/cybersecurity-principles-learning-outcomes-whitepaper.pdf

Finally, as stated above, the content and reports of the bachelor thesis are weak and need to be improved. Practical work as part of a bachelor thesis is good, as it demonstrates the level of achievement of a student at the end of their degree. However, it should be documented more fully and set within an appropriate scientific context. Embedding student thesis work in the research of the staff more fully should help raise standards. It is noted that the institution does not have a PhD programme which would also help however, it has begun research cooperation within a cluster of about 4 institutions and there may be potential links there which could further support and help raise the standards of the theses.

2.3. Teaching staff

There are 19 teachers in total on the programme and the staff base is relatively stable: 14 teachers teach the informatics field of study and 5 deliver the general university subjects. 78% of the volume of study subjects are taught by scientists, which more than meets the 50% legal requirement and these include: 1 (7%) professor, 7 (50%) associate professors, 4 (28%) lecturers (2 of them (14%) – doctors of science), 2 (14%) assistant lecturers. Calculating in ECT credits: 12 (7%) professors, 102 (57%) associate professors, 45 (24%) lecturers (24 of them (13%) doctors of science), 6 (3%) assistant lecturers.

Whilst the staff formally teaching on the study programme meet the Lithuanian legal requirements and are adequate to support the learning outcomes of the programme, although the team more than met the legal requirements for the number of staff with PhDs, the research activities could be more

extensive. For example, in 2015 staff participated in only 2 international conferences and 1 national conference. Whilst this is better than the previous year which was zero, it is significantly down from 2012 where they numbers were 10 and 3 respectively (p14 SER). It was noted that academic staff have some allocated time for research activities which is good and also that the amount of research time awarded to a member of staff could be varied at the discretion of the Head of Department. Some staff appear to have fairly high teaching loads and are not research active (based on the lack of a publication list in their CVs). It was noted that the university had set up a research institute in the past year and in principle this is very welcome. Whilst it is still early days for the institute, the panel was concerned about the disconnect between this new research institute and the teaching, and the risk that it may remove existing research from the faculty, thus reducing the potential to expose students to leading edge research which his important at the bachelor level. If it is possible for the research institute staff to remain in the faculty, and for a virtual institute for multidisciplinary work and bidding to be formed, then this may be a better solution. If not, then the panel would urge the university to find mechanisms to ensure that staff in the research institute retain strong links with both faculty staff and students. As has been identified in a previous evaluation, the panel would also like to encourage the academic staff to enhance their English skills given so much of the scientific literature and many international conferences and online webinars etc. are in English, they may be missing out.

It was noted that the student-staff ratio for the university is higher (15.8) than government recommendation of 13:1 however due to a drop in student numbers, the ratio is better in the informatics discipline and compares very favourably with international norms.

Staff development within the faculty and university is well supported. Sometimes project funding is used however there are mechanisms within the university and the faculty for staff to request development and these requests are supported the vast majority of the time. This is clearly working well with about half the teachers having travelled abroad in the past year. So far there have been no visits from incoming teachers however one from Turkey is planned for Spring 2016. Staff also make use of attendance at online webinars etc. where appropriate to enhance knowledge and although not as valuable as the experience of an actual conference where networking and additional discussion with colleagues can take place, it is nevertheless a useful additional support for ongoing staff development.

In terms of mobility, staff have the opportunity for travel under the Erasmus+ scheme. Teachers from the Informatics programme regularly travel abroad using these and other funds such as faculty

money however, it was noted that it is harder to attract teachers to come to Lithuania and some further work needs to be done in this area. Enhancing the English skills of staff could assist with this, as well as ensuring access to a wider set of literature and networks for both students and staff

2.4. Facilities and learning resources

The review panel was given a tour of the facilities and learning resources. All classrooms were fully functional, have projectors for presentations and met the requirements for a learning environment however the review team felt that the atmosphere in some rooms did not provide an inspiring educational experience. There are a range of different sized classrooms, the largest having a capacity of 80 seats and two classrooms have the capacity to record live lectures for streaming and recording purposes. The institution also has a modern hall which has the capacity to provide simultaneous translation in 3 languages if needed. 12 lecture rooms and laboratories are reserved for students on this study programme.

The university provides the same software on all machines through the use of virtual servers. They also provide all students with licensed software for their own laptops. All classrooms have access to generic software and teachers can access subject discipline software in addition. Some of the hardware however is rather old, there were a small number of labs with machines from 2007 and 2010. Whilst in principle this need not necessarily be an issue if the machines are used as dumb terminals, it was clear from student feedback that the speed of the computer system was an issue for them and this is a significant problem which needs addressing urgently. In terms of the process of upgrading the software, teachers submit their requirements for the following year, a list is produced which is then reconciled in a discussion with all teachers. A good range of specialist IT facilities exist, for example there is an isolated network for students to experiment with Cisco networks.

The library is very modern and was built in 2008. It is open to the public as well as students however the public cannot remove books which is good as this ensures they are available for staff and students which is the primary purpose of the library. The collections contain about half a million items and provide access to 25 databases, in addition to other open access resources, is provided for staff and students. It was however noted that the collections currently do not provide access to the ACM and IEEE digital libraries and this was noted in the last report. These digital libraries are considered core to the informatics field however it was understood that negotiations to restore these works to the library were well underway and expected to become available in May 2016. The library resources are provided in a range of languages, about 35-40% are in English,

some are in Russian, and the remainder in Lithuanian. The policy, which the review team support, is to purchase online books and journals where possible as this provides more flexible access to staff and students. Within the library there is a general reading room where books cannot be removed. The university also provide some small individual working rooms to provide a quiet area for staff and some students to work, in addition to group working rooms for students. The library also provides childcare facilities for staff and students who can leave their children for up to 4 hours to attend classes/ work.

Student work practice procedures are documented and staff are engaged in support as part of their pedagogical load. Faculties are given a list of possible social partners, both national and international, and the faculties can then choose who they would like to engage with. The department also seeks out high quality enterprises as new partners every year so that the list is constantly refreshed and updated. The relationship with partners with regard to student practice, is mutually beneficial, in that students get to practice their skills, and partners get work done for them. In return, social partners may also engage in the continuous studies institute if they have the need. Monitoring of the student practice is via a plan which contains weekly goals and tasks. The outcomes are evaluated according to the achievements which relate to these goals, resulting in a variety of reports.

2.5. Study process and students' performance assessment

The study programme is well organised and clear information is provided to students about their study plans. It is also well supported by guest lecturers from industry. The level required for admission to the programme is appropriate and publicly available on the university web site. Numbers have fluctuated over the years and 2015 entry of 16 full-time students and no part-time students is similar to that of 2010 (15 full-time and 2 part-time) however numbers grew in the interim to a high of 28 full-time students and 1 part-time student in 2014.

Students were extremely positive about their experience such as the teacher support, including out-of-hours help from both full-time and part-time staff, and the quality of the teaching and extra-curricular activities. Apart from the speed of the hardware they were very happy with the resources available to them. Students experience a good range of assessments and are provided with an assessment schedule, criteria for grading assessments and prompt feedback on their work etc. They also confirmed that staff are very rigorous in authenticating their work through vivas etc. About 80% of the subjects are available in distance learning mode and the institution has made good progress in addressing the problems raised in the last review, investing in Moodle, and helping staff

to develop their pedagogic skills in this area including the use of technology for teaching such as Adobe Connect. The university is very experienced in distance learning delivery however, it is a more recent development for the informatics staff who will begin delivery of a distance learning programme in September 2016. The panel would however encourage additional dialogue between staff to debate assessments, the range of assessments set, and mechanisms to support the consistency of students experience between face-to-face students and distance learners as far as is possible, and the standards for marking.

In terms of mobility, students have the opportunity for travel under the Erasmus+ scheme. Enhancing the English skills of students could assist with this. Students expressed a view that they would like a wider range of countries and institutions to choose from in terms of Erasmus mobility and, both the faculty and university should devote some resource to expanding Erasmus networks.

Whilst students have some opportunities to participate in research activities, these are currently limited and should be extended, particularly with staff in the research institute.

For the last three years employer demand for the students is high and the university has been unable to meet that demand. Some students also work in companies throughout their studies separate to their programme of study however if the competing demands of work and study are too much then students may transfer to the part-time mode. Graduate employment is very good, for example in 2015, of the 12 graduates 6 had been employed on the day of their graduation, 11 were employed 6 months later and 1 had gone on to further study. Students are working locally, in other cities nationally and in international companies, in a range of sectors such as data centres and in the banking industry.

2.6. Programme management

The university has a good and effective quality management. The quality procedures for the management of the study programmes are agreed by the university and assured at four levels: the university level, faculty level, department level and the study programme level. At programme level, there is a committee which takes oversight of the programme and every March meets with all the stakeholders i.e. staff, social partners (alumni and employers), students and managers and all parties felt they had adequate input to the programmes, an example being enhanced teaching of security as suggested by one of the employers. The output is an action plan which is then published on the web and implemented.

Students are asked for feedback at the end of each semester and the issues are being fed into the study programme committee for debate. Students do not however have to wait for formal mechanisms to provide feedback, they are in a constant informal dialogue with staff. In addition the Dean made it clear he is very keen to help and will always speak directly to students if useful. There is however concern about the reduction in the number of students on the programme having reduced from 19 students (29 full-time and 1 part-time) in 2014, to only 16 full-time students in 2015. The university is doing a lot of good work with local schools to attract students however more needs to be done given the local and global shortage of IT professionals.

In terms of the management of research, as stated above, whilst the concept of a research institute is excellent, it is vital that the researchers do not become disconnected with the faculty staff or the teaching and mechanisms for how this could work need to be considered as a matter of priority.

Some of the recommendations from the 2013 have been implemented for example, the Moodle optimisation, formal procedures for getting feedback from students and a reduction in the subject main references to a reasonable size however there are some on-going issues that have yet to be addressed. These are: the number of specializations, access to ACM/IEEE digital libraries which is in hand, more modern equipment in laboratories and increase student mobility which is recognised to be a challenge.

III. RECOMMENDATIONS

1. Review the standards for the bachelor theses to ensure that work is set in an appropriate scientific context.
2. Ensure that there are strong links between the new research institute and the faculty staff and students, and that there are opportunities to collaborate with the research cluster set up with other universities.
3. Increase the research activities of the staff.
4. Upgrade the hardware and/or optimize the software configuration management to provide sufficient speed of access to software for students.
5. Renew full text access to ACM and IEEE digital libraries.
6. Ask staff and students which countries they prefer for a potential Erasmus exchange and try to increase the number and variety of Erasmus partners
7. Review the number of specialisations offered on the degree.
8. Introduce the basics of concurrency and parallelism (parallel algorithms, concurrent data structures) early in the core curriculum.
9. Increase the security and legal content in core subjects of all specialisations.
10. Implement more formal mechanisms to ensure teachers share best practice and discuss standards for teaching, and the setting / marking of assessments.

IV. SUMMARY

The Informatics study programme provides students with a grounding in traditional computer science topics and the learning outcomes are appropriate for the programme and subjects as defined and have a sufficient breadth across the field of computer science. Learning outcomes are publicly available and meet the needs of both international and local IT markets however the implementation of the thesis learning outcomes are not at the required standard.

In terms of the content the programme, overall it is suitable for the field of study however, it would be strengthened by the inclusion of more security and legal issues in the core subjects, and the bachelor theses should provide more evidence that the practical work undertaken has been thoroughly evaluated in a scientific/ academic context, in accordance with international standards. The main area for improvement is the implementation and grading of the bachelor thesis learning outcomes.

The staff are well qualified and the department has a good student-staff ratio which enables them to provide good academic and personal support to students. It is however recommended that more staff gain PhDs. The university has set up a new multidisciplinary research centre in the past year which is an excellent initiative. However, there is a risk that these research staff may become disconnected from the faculty and the students, so mechanisms to foster integration and joint working are strongly encouraged. The English abilities of both the staff and students should be further strengthened to ensure they are at a sufficient level to enable access scientific literature and international conferences etc.

In terms of resources, the library is very good with a good range of facilities, reading rooms, small rooms for individual and group work and childcare facilities. The only missing items are access to the ACM/IEEE Digital Libraries which the university is already renegotiating to purchase. In terms of hardware and software, there is a good range and includes several specialist labs which are available to students. Virtualised software is used to provide a consistent experience across the campus and for use on students' personal laptops. There is however an urgent need to upgrade the campus hardware as the speed is insufficient.

Students are provided with very thorough and complete information on their study process and student performance is good. The Assessment process is managed well with a good variety of

assessment types being utilised. Students receive clear specifications, grading criteria and timely feedback. The processes used to authenticate authorship of student work were noted as very rigorous. The assessment process could however be improved through enhanced discussion between staff, regarding the setting and marking of assessments, in order to ensure consistent standards and marking of student work.

Overall the programme is managed well, there are good procedures in place for reviewing the content and a formalised process for gathering input from all stakeholders such as alumni and employers, and the students. Responses are documented and published. The main area for improvement is to review the interaction with the new research institute to ensure links to faculty staff and students are not lost.

V. GENERAL ASSESSMENT

The study programme *Informatics* (state code – 612I10008) at Šiauliai 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	2
2.	Curriculum design	2
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	3
	Total:	16

*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:	Liz Bacon
Grupės nariai: Team members:	Helmar Burkhart
	Gerald Steinhardt
	Vaidas Repečka
	Vytautas Mickevičius

ŠIAULIŲ UNIVERSITETO PIRMOSIOS PAKOPOS STUDIJŲ PROGRAMOS *INFORMATIKA* (VALSTYBINIS KODAS – 612I10008) 2016-06-07 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-134 IŠRAŠAS

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V. APIBENDRINAMASIS ĮVERTINIMAS

Šiaulių universiteto studijų programa *Informatika* (valstybinis kodas – 612I10008) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	2
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	**16**

* 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

Informatikos studijų programa suteikia studentams pagrindą tradicinio kompiuterių mokslo temomis, o studijų rezultatai atitinka programą ir apibrėžtus studijų dalykus, taip pat pakankamai plačiai apima kompiuterijos mokslo sritį. Studijų rezultatai skelbiami viešai, jie atitinka tiek tarptautinės, tiek vietos IT rinkų poreikius, tačiau baigiamųjų darbų įgyvendinimo studijų rezultatai neatitinka nustatytų standartų.

Kalbant apie studijų programos turinį, bendrai jis yra tinkamas šiai studijų krypčiai, tačiau pagrindiniai jo dalykai galėtų būti papildyti apsaugos ir teisės temomis, o baigiamuosiuose bakalauro darbuose turėtų būti teikiama daugiau įrodymų, kad atliktas praktinis darbas buvo atidžiai įvertintas moksliniame ar akademiniame kontekste pagal tarptautinius standartus. Pagrindinė sritis, kurią reikia tobulinti: baigiamųjų bakalauro darbų studijų rezultatų įgyvendinimas ir vertinimas.

Personalas yra pakankamai kvalifikuotas, o santykis tarp personalo ir studentų katedroje taip pat pakankamas, todėl personalas studentams gali suteikti reikiamą akademinę ir asmeninę pagalbą. Tačiau rekomenduojama, kad daugiau personalo narių įgytų mokslų daktaro laipsnį. Praeitais metais universitetas įsteigė naują daugiadalykį mokslinių tyrimų centrą, kuris yra puiki iniciatyva. Tačiau kyla rizika, kad šie moksliniai darbuotojai gali nutolti nuo fakulteto ir studentų, todėl itin skatinama nustatyti mechanizmus, kaip didinti integraciją bei bendrą darbą. Tiek personalui, tiek studentams derėtų toliau gilinti anglų kalbos žinias siekiant, kad jų anglų kalbos lygis būtų pakankamas literatūrai skaityti, dalyvauti tarptautinėse konferencijose ir kt.

Materialiniai ištekliai bibliotekoje yra puikūs, joje pakanka patalpų, skaityklų, nedidelių patalpų individualiam ir grupiniam darbui, taip pat patalpų, kuriose galima palikti vaikus. Vienintelis dalykas, kurio trūksta, – prieiga prie ACM/IEEE skaitmeninių bibliotekų, dėl kurios įsigijimo universitetas derasi iš naujo. Kalbant apie aparatinę ir programinę įrangą, universitete yra didelis jos pasirinkimas, taip pat įsteigtos kelios specialiosios laboratorijos, kuriomis gali naudotis studentai. Visoje universiteto teritorijoje veikia virtuali programinė įranga, ja studentai taip pat gali naudotis asmeniniuose nešiojamuosiuose kompiuteriuose. Tačiau reikia skubiai atnaujinti universiteto aparatinę įrangą, nes ji nėra pakankamai greita.

Studentams teikiama labai išsami informacija apie jų studijų procesą, studentų rezultatai yra aukšti. Vertinimo procesas valdomas gerai, jam naudojamas įvairių tipų vertinimas. Studentams laiku teikiamos aiškios instrukcijos, vertinimo kriterijai ir grįžtamasis ryšys. Procesai, naudojami studentų darbų autorystei autentifikuoti, buvo įvertinti kaip labai tikslūs. Tačiau vertinimo procesą būtų galima tobulinti skatinant diskusiją tarp personalo narių apie vertinimo nustatymą ir balų skyrimą tam, kad būtų užtikrinta, jog studentų darbai vertinami taikant vienodus standartus.

Apskritai, programos vadyba vykdoma gerai, taikomos tinkamos procedūros programos turiniui peržiūrėti ir formalūs procesai, skirti visų socialinių dalininkų, tokių kaip buvę studentai ir darbdaviai bei studentai, indėliui. Atsakymai dokumentuojami ir skelbiami. Pagrindinė sritis, kurią reikėtų tobulinti, – ryšiai su naujuoju mokslinių tyrimų institutu, siekiant užtikrinti, jog nebūtų prarastas ryšys su fakulteto personalu ir studentais.

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III. REKOMENDACIJOS

1. Peržiūrėti bakalauro baigiamųjų darbų standartus, siekiant užtikrinti, kad darbai atitiktų reikiamą mokslinį kontekstą.

2. Užtikrinti, kad tarp naujojo mokslinių tyrimų instituto ir fakulteto personalo bei studentų būtų palaikomi stiprūs ryšiai, taip pat kad būtų galimybės bendradarbiauti su mokslininkų grupėmis, sudarytomis kartu su kitais universitetais.

3. Skatinti personalo mokslinę veiklą.

4. Atnaujinti aparatinę įrangą ir (arba) optimizuoti programinės įrangos konfigūravimo valdymą, kad studentai galėtų naudotis pakankamai greitai veikiančia programine įranga.

5. Atnaujinti galimybę įvesti visą tekstą ACM ir IEEE skaitmeninėse bibliotekose.

6. Pasiteirauti personalo ir studentų, kurias šalis jie pasirinktų savo potencialiai Erasmus mainų programai, ir stengtis padidinti Erasmus partnerių skaičių bei įvairovę.

7. Peržiūrėti mokslinį laipsnį suteikiančios programos specializacijų skaičių.

8. Pagrindinėje mokymo programoje anksti įvesti konkurencijos ir paralelizmo pagrindus (paralelinius algoritmus, lygiagrečiąsias duomenų struktūras).

9. Visose specializacijose padidinti apsaugos ir teisės dėstomų dalykų turinį.

10. Įgyvendinti formalesnius mechanizmus, siekiant užtikrinti, kad dėstytojai dalytųsi gerąja praktika ir aptartų dėstymo standartus, nustatytų, vertinimo sistemą.

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