STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

KAUNO TECHNOLOGIJOS UNIVERSITETO

INFORMATIKOS STUDIJŲ PROGRAMOS (621I10003) VERTINIMO IŠVADOS

EVALUATION REPORT OF *INFORMATICS* (621I10003) STUDY PROGRAMME AT KAUNAS UNIVERSITY OF TECHNOLOGY

Grupės vadovas: Team leader:	Prof. Philippos Pouyioutas
Grupės nariai: Team members:	Prof. Manfred Nagl
	Dr Eleni Berki
	Mr Adomas Svirskas
	Mr Justinas Petravičius

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	***Informatika***
Valstybinis kodas	621I10003
Studijų sritis	Fiziniai mokslai
Studijų kryptis	Informatika
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2 m.)
Studijų programos apimtis kreditais	120 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos magistras
Studijų programos įregistravimo data	Lietuvos Respublikos švietimo ir mokslo ministro 2007 m. vasario 19 d. įsakymu Nr. ISAK-225

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	***Informatics***
State code	621I10003
Study area	Physical Sciences
Study field	Informatics
Kind of the study programme	University Studies
Study cycle	Second
Study mode (length in years)	Full-time (2 years)
Volume of the study programme in credits	120 ECTS
Degree and (or) professional qualifications awarded	Master of Informatics
Date of registration of the study programme	19 of February 2007, under the order of the Minister of the Ministry of Education and Science of the Republic of Lithuania No. ISAK-225

CONTENTS

I. INTRODUCTION

The procedures of the external evaluation of the Kaunas University of Technology (hereafter, KTU) *Informatics* Master study programme were initiated by the Centre for Quality Assessment in Higher Education of Lithuania nominating the External Evaluation Peer Group (hereafter, EVPG) formed by the head, Professor Philippos Pouyioutas (Professor of Computer Science and Vice Rector, University of Nicosia, Cyprus), Professor Manfred Nagl (Professor Emeritus of Software Engineering, RWTH Aachen University, Germany), Dr Eleni Berki (Adjunct Professor of Software Quality and Formal Modelling, University of Tampere, Finland), Mr Adomas Svirskas (Freelance IT Consultant and Researcher, Institut Eurécom, Sophia-Antipolis, France), employer representative, and Mr Justinas Petravičius (Vilnius Gediminas Technical University, Lithuania), student representative.

For the evaluation the following documents have been considered:

1. Law on Higher Education and Research of Republic of Lithuania;
2. Procedure of the External Evaluation and Accreditation of Study Programmes;
3. Methodology for Evaluation of Higher Education Study Programmes;
4. General Requirements of Master Degree Study Programmes.

The basis for the evaluation of the study programme is the Self-Evaluation Report (hereafter, SER), prepared in 2013, its annexes, the site visit of the EVPG to KTU on 8 November 2013 and the two site visits of two other KTU study programmes (6 November 2013 for the *Software Systems* Bachelor study programme and 7 November 2013 for the *Informatics* Bachelor study programme), as well as the SER of the aforementioned two other study programmes. The three site visits helped the EVPG get an overall view of the way the KTU Faculty of Informatics, its departments and study programmes offered operate. The site visit of the *Informatics* Master study programme incorporated all required meetings with different groups (except senior administrative staff, with whom EVPG met during the 6 November 2013 site visit): staff from the self-evaluation group (from the Department of Multimedia Engineering offering the study programme, the Department of Systems Analysis and the Department of Computer Networks), responsible for preparing the SER, teaching staff, students of all years of study, graduates and employers. The EVPG evaluated various support services (classrooms, laboratories, library, computer facilities), examined students' final works, and other provided material. After the EVPG discussions and additional preparations of conclusions and remarks, introductory general conclusions of the site visit were presented. After the site visit, EVPG met to discuss and agree the content of the report, which represents the EVPG's consensual views.

The findings of the EVPG during the three site visits re-enforced the view of the EVPG that there are some organizational issues to be addressed at the faculty level. By reading the three SERs for the three study programmes evaluated, the EVPG identified a number of discrepancies as same data/information is expressed in very different ways, resulting in overall confusion. The EVPG's conclusion from reading the three SERs was that the three reports were prepared in isolation of each other. During the three site visits, this was clarified to be the case; thus, the reports were not built using a modular approach with the three SER groups working together for the common parts/issues addressed, an approach one would expect to be followed by informatics specialists. The overall approach of preparing the SERs separately indicates the fact that the various departments involved, do not co-operate enough (both at the strategic level, as well as at the operational level).

The three site visits helped the EVPG to understand the structure of the Faculty of Informatics and its departments. This was not clear at all from reading the three SERs. Only after a request by the EVPG, a hierarchical organizational chart/diagram was provided, listing the five departments of the faculty and under each department the study programmes offered, as well the number of students and graduates of each programme. The EVPG was informed that during the last years, re-organization has been taking place, which resulted in merging departments (from 7 before to 5 now). The 83 teaching staff of the faculty, are now distributed in the 5 departments (an average of 17 staff per department). The 5 departments are: *Computer Science, Information Systems, Software Engineering, Multimedia Engineering, and Applied Informatics*. The EVPG noticed, the names of the departments do not clearly reflect their specialization in research and teaching. It seems that the existing faculty structure reflects the historical situation rather than today's needs and state-of-the-art developments. The EVPG believes that further re-organization needs to take place in order to utilize better human resources and promote collaboration between departments, study programmes and staff.

All mentioned departments offer one Master and one Bachelor study programme except of the Software Engineering Department which offers two Bachelor study programmes and one Master study programme. In total the Faculty of Informatics offers 6 study programmes at the 1st cycle (Bachelor) level: *Informatics Engineering, Information Systems, Software Systems, E-Learning Technologies, Multimedia Technologies, Informatics* and 5 study programmes at the 2nd cycle (Master) level: *Information and IT Security, Information Systems Engineering, Software Engineering, Information Technologies of Distance Education, Informatics*.

The overall responsibility to offer the study programmes, seems to be more at the faculty/Dean level. It was clear during the three site visits, that there is very tight control at the faculty level with regards the direction of the faculty, the departments and the study programmes. The decision-making and control are in the hands of the Dean, the Heads of departments and the programme leaders/co-ordinators. The teaching staff is not involved to any extent in decision-making and/or providing input and feedback. Thus, a bottom-up approach should be also adopted in the decision-making, empowering the teaching staff to contribute to change and innovation.

The *Informatics* Master study programme which exists since 1992, is one of the 5 Master programmes offered by the faculty and the only one which belongs to the study field group of Mathematics/Computer Science. It is coordinated by the Multimedia Engineering Department and is supported by staff of other departments of the faculty. The study programme has a specific profile, namely Computational Informatics, being a combination of Applied Mathematics, Artificial Intelligence, Multimedia, and Internet Computation. The programme seems to be attractive for students, as there is a ratio of 1:2.5 of selected to applying students and on average 24 new students every year (since 2008).

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The aims of the *Informatics* Master study programme were outlined in the SER as follows:
"18. The aim of the IMDP is to prepare graduates who have the fundamental understanding of the theory and techniques in Informatics by providing necessary knowledge in applied mathematics, artificial intelligence, multimedia computation and Internet computing. It develops abilities in creation of case oriented algorithms and software for computer graphics, virtual reality and media data processing applications.
19. The distinguishing feature of the IMDP is the development of skills enabling the students to carry out the scientific research work in the field of Informatics, to formulate and verify hypotheses, to create new models and systems for multimedia applications and for other products of Computational Informatics.
29. The Programme aims to educate the Masters of Informatics, who are able to adapt to the quickly changing demands in various areas of computer applications, as well as, to be able to employ mathematical methods and algorithms for the development of the multimedia software, to carry out computer modelling of real-life systems for computer graphics, virtual reality and engineering applications."

The study programme aims and intended learning outcomes (readily available online in Lithuanian and English) are suitable and adequate for Master level study programme of informatics. The programme, on one hand, puts emphasis on mathematical methods and algorithms – more theoretical side of informatics; on the other hand it also covers the practical aspects of the IT industry needs. The combination of these skills gives programme students a balanced perspective and a set of skills needed in today's IT world. The interrelationship between the aims of the study programme and its intended learning outcomes is also clearly set. This allows understanding in which way the programme aims and the intended learning outcomes are supported by the study subjects (courses) and learning methods employed. Having said this, the services of a professional interpreter are recommended, in order to make the English version of the study programme representation more accurate.

However the name of the Master study programme is quite unspecific and general – *Informatics*. It sounds as if any topic from informatics can be chosen or any combination of topics, including Theoretical Computer Science. Instead the programme is a combination of different and specific fields with the possibility to specialize in one or more of them. So, the department is recommended to discuss and think of a more proper name for the study programme.

2. Curriculum design

The study programme consists of 120 ECTS credits (not of 180 ECTS credits as stated in the SER pages 2 and 9). This satisfies both the Bologna Process requirements and the Lithuanian Law (minimum 90 ECTS for 2nd cycle study programmes); 78 ECTS credits are assigned to study field courses (thus satisfying the minimum required by Lithuanian Law, which is 60 ECTS credits); 12 ECTS credits are assigned to elective courses (less than the maximum allowed by Lithuanian Law, which is 30 ECTS credits); 30 ECTS are assigned to the writing and presentation of the final project/Master thesis (satisfying the minimum required by Lithuanian Law, which is 30 ECTS credits). The courses are spread evenly across the semesters and their content is consistent with the type and level of studies. All courses are 6 ECTS credits each, except the thesis, which is 30 ECTS credits. Thus a student in order to complete the study programme has to take 15 courses plus the thesis. 5 courses are taken every semester during the first 3 semesters (i.e. 30 ECTS credits per semester), whereas the thesis is taken during the last (4th) semester. Thus the Bologna process requirement for 30 ECTS credits per semester is satisfied. Out of these 15 courses, as stated before in terms of ECTS credits, 13 courses are core and 2 courses are electives. Out of the 13 core courses, 3 courses are designated to the preparation of Master thesis through the sequence of*: Research Project 1* (semester 1), which serves for problem analysis and literature studies, *Research Project 2* (semester 2), which provides for method development and solution design and *Research Project 3* (semester 3), which provides for steps in the direction to the overall solution. The thesis itself (semester 4) then brings everything together, and provide for a *specialization* in the study programme. This model is kind of specific for Lithuania and all stakeholders reported that it is a successful one.

The theses are mostly done in cooperation with industry, the students starting their first job often in the company with which the thesis was prepared. Although most theses have a practical background, it was argued that due to their research-orientation they also contribute somehow to research.

In what follows, the EVPG provides further remarks, suggestions, and recommendations to improve the study programme.

The EVPG was told that no courses are shared with the other Master study programmes of the faculty. However, although all courses need to be taken from the list of core and elective courses of the Master study programme *Informatics*, a student, after petition and approval of the Study Programme Committee (hereafter, SPC), can select to take up to 3 courses from the other Master programme courses of the Faculty of Informatics. The EVPG believes that the programme

should provide more flexibility by increasing the number of electives, allowing thus for personalized study plans according to the interests of the students and also making it more attractive to prospective students. This can easily be achieved by allowing students take elective courses from the other Master study programmes of the faculty without any petition and approval needed.

As far as the process for selecting the thesis topic is in connection to the provision for a *specialization* in the study programme, one could argue that choosing a specialization in the first semester is a problem. An alternative approach would be to allow the student the possibility to visit several lectures or seminars before he/she commits for a certain area of specialization.

The research-orientation of the study programme can be improved: the students should better know what research is carried out in the faculty and should be more aware of the importance of research-orientation, as students in a research-oriented study programme get a deeper technical education, more soft skills, more independence etc., which also upgrades the chances for a career in the long run (this is, especially, true for those who even go for a PhD and afterwards start working in industry). In order to achieve this goal there should be more freedom for the student to build up a personalized study plan by choosing and selecting more freely what is interesting for him/her and contributes to a specific profile.

It seems that also the consciousness of companies in that direction has to be enhanced. The EVPG heard from employers on one side that it is not important what degree a student has, and on the other side the contradicting statement that for specific tasks employers need a Master or even a PhD. The EVPG also heard that industry likes to have people with a short education and at the same time complains that the graduates miss some soft skills which are important for projects, especially those which contribute to the long-term success of a company. As the department has quite close relations to industry, there is a chance to change the mind of industrial people in the above-mentioned direction.

The internationalization of the study programme should be augmented. Examples for improvement are a better cooperation with institutions from abroad with respect to teaching and research, attracting more students and more staff from abroad, sending more Lithuanian students abroad, KTU staff going abroad for teaching and research (this seems to develop properly), the faculty and departments taking part in more international research projects, a bigger number of courses to be offered in English or even the whole programme to be offered in English for foreign students. The EVPG found some promising examples in these directions but not a broad appearance.

The department should also consider offering the programme in e-learning mode as all necessary infrastructures and expertise (e-learning Unit and Master study programme in *Information Technologies and Distance Education*) is available.

Finally, the EVPG recommends that the study programme structure becomes clearer with respect to the courses, their contents, their names and consistency with their contents, the semester the courses are offered, the pool of electives from where a student can choose from, standard programme profile and individual profiles that can be selected, patterns for electives and specialization which are often used, etc.

Summing up, the name of the study programme, its intended programme and course learning outcomes, content, and qualifications offered are altogether compatible with each other to some extent. This positive statement, nevertheless, is no contradiction to the critical remarks and the constructive suggestions/ recommendations given above.

3. Staff

The Master study programme is delivered by 4 professors, 5 associate professors and 4 lecturers with a PhD degree. Furthermore, 9 PhD students assist the senior teachers at tutorial sessions and provide help in co-supervising research work. The number of staff is adequate for supporting the study programme.

The staff (all men) are very well qualified and equipped with the knowledge, skills and expertise required for staff according to the legal, academic and subject-specific requirements for their appointment by the KTU and the State of Lithuania. Any policies for equal opportunities regarding gender, age, nationality, and other minorities (among students and staff) would benefit the Master study programme. For instance, staff recruitment could also target women doctoral researchers as well; the latter can also act as role models for increasing the number of female students, which, in turn, could influence the social impact of the programme and its long-term aims and outcomes for the society and industry.

The staff members try to be engaged in meaningful research projects, activities and teaching exchanges abroad. Also research collaboration with international partners is obvious, but could be strengthened. The latter seem to be fruitful and should further be encouraged and supported financially by the top management, because the cost of travelling and spending time abroad is high for Lithuanian salaries. Professional and personal development should also be encouraged and financially supported through memberships in national and international informatics

societies, special interest scientific groups, trade unions and professional associations (CEPIS, IEEE, ACM, IEE), and other.

Furthermore the older and more experienced members of staff could be good mentors/coaches for the new members of staff and provide invaluable advice and support. Except this synergetic collaboration, management staff should consider to deploy motivating factors for all the staff members in terms of: i) providing more time available for research and ii) securing more financial support for conferences, workshops and other similar activities' (e.g. pedagogic seminars) attendance and participation.

Internal feedback mechanisms and quality procedures among staff members could bring valuable exchanged feedback and other opinions for different teaching and learning methods and tools, research results and potential application/applicability, and other issues. Feedback through teaching/tutorial observations can enrich the lecturers' experiences, enhance the staff relations and increase the teaching quality.

The EVPG is concerned however with the work environment of the staff. There are signs, that in general staff members are dissatisfied with the work conditions. The teachers mentioned lack of support, lack for more autonomy/freedom in teaching and lack of time for other than teaching activities. During the meeting with the EVPG, it was also mentioned by some staff members that students prefer to ask help and advice from certain teachers only, notably the younger/newer ones, who, could happen, have more interest in the subjects while others might feel boredom and disinterest. Along with demanding students' behaviour and lack of management support and opportunities for participation and empowerment, the situation seems to be quite difficult because all these are signs leading to teachers' burnout.

An anonymous survey on staff's job satisfaction could enrich the above observations and could give the necessary data to the management staff for the action for improvement and necessary changes and/or reforms.

4. Facilities and learning resources

Overall, the premises for studies, buildings, classrooms, laboratories, library and the teaching and learning equipment are adequate in terms of quantity, size and quality and provide appropriate access to people with disabilities.

Classrooms are equipped with computers and projectors. Library opening hours are considered both adequate and convenient (Monday-Thursday 08.00-20.00, Friday 08.00-18.00 and Saturday

09.00-16.00). Access to public Internet space and restricted databases is provided. Teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible. Computer Labs are equipped with modern computers. Computer equipment and the network are sufficient, properly administered and secured. Internet connection is sufficient and wireless network is accessible throughout the premises. There is a diversity of equipment, technology platforms and software available for the students.

The staff members seem to utilize the available learning resources (library, laboratories, learning spaces, etc.) very well, and these resources seem to be a very good assistance in their duties. The premises/facilities include a very good Innovation and Business Center, as well a very good e-learning Unit, both providing resources that enhance the teaching/learning experience of the teaching staff and students.

The main recommendation of EVPG with regards to the facilities and learning resources is for the department to keep modernizing and improving the facilities and resources available to the students and teaching staff. Furthermore, in order to promote and support Problem Based Learning (PBL) and collaborative work, there is a need to further improve the availability of space that supports this kind of learning activities. Finally, in order to solicit feedback from all users, the department could carry out an annual questionnaire requesting feedback with regards to the facilities and resources.

5. Study process and student assessment

In general, the study process ensures an adequate provision of the programme and the achievement of the intended programme and course learning outcomes. The learning methods as stated in the course syllabi are appropriate for the achievement of the intended programme and course learning outcomes. The assessment system of students' performance is clear, adequate and publicly available. The admission requirements are well founded and admissions numbers are quite good (average 24 new students per year since 2008). As pointed out before, the development of clearer study programme description in both printed and electronic form (through the website) would help existing students to understand better the study programme; it would also help attracting more students. Offering the programme in English would help in recruiting international students and create an international environment for home students.

Students have opportunities to participate in student mobility programmes. However, as pointed out during the meetings, students of this study programme do not participate in mobility programmes because the majority of them have jobs. Nevertheless, the EVPG recommends

further promoting mobility programmes and encouraging students to participate in such mobility schemes.

As it was stated, most students work in companies in parallel to their studies, which causes some difficulties. There are some actions necessary: (a) students to be convinced to put their studies as a priority over their work or alternatively, (b) the department develops study plans, which are planned to run in parallel to students' work in industry (from their structural form, their schedule, their profile etc.). As there is a close relation between the department, the alumni, and the employers – stronger than at many places – there is the chance for (a), namely to change the students' behaviour. This is also useful for employers, if they think in a long-term time scale.

The EVPG was pleased to note the existence of an Innovation and Business Centre at the University that allows students to participate in business start-up initiatives. More effort however needs to be put in order to engage students in research activities. To this end, the teaching staff is encouraged to engage students in their research projects (through the final degree project/Thesis and/or relevant assessment work during their courses).

The EVPG was also pleased to note the existence of a very good e-learning Unit that provides support to teaching staff in developing e-material. The EVPG suggests that the department considers offering the study programme in e-learning mode. This would help attract even more students and will provide a more inclusive access to the study programme.

In general the department is recommended to enhance the students learning experience by promoting further a student-centred learning environment. To this end, Problem Based Learning (PBL), collaborative work, further and deeper exposure to research should be used. Furthermore, in order to improve the students' social and soft skills, as well as language, communication and presentation skills, students should be encouraged to participate in out-of-class social activities organised by the department/faculty/university.

6. Programme management

Programme management at KTU is administered and coordinated by the Vice Rector of Studies and Department of Studies, responsible for the formation of Study Programme Committees (SPC). The SPC is the main body responsible for study programme review, assessment, quality assurance and enhancement. The SPC provides recommendations to the three departments offering the programme, the Faculty Board and the Senate Study Committee. One would expect that the Faculty Board would have an increased responsibility with regards to the offering of inter-departmental programmes such as the one under evaluation.

The 15-members SPC for the Bachelor Degree in Informatics includes highly ranked professors (including the Dean of Faculty), social/industry partner and a student representative delegated from the Faculty Student Union. One however may question the balance of the members of the committee as 86% of the committee members are internal professors and only 7% (one member) is a social partner and 7% (one member) is a student. One could argue that the SPC could include two representatives from social partners and two students.

As per SER, the curriculum is reviewed both at the study subject level as well as at the programme level every year and is presented to the Faculty Board for approval. Each subject of the programme has a co-coordinating lecturer responsible for it. All changes are approved hierarchically by the Faculty and Senate and the relevant Study/Quality Committees.

Lecturers are evaluated every five years by the Accreditation and Contest Commissions of KTU according to law provisions. They are also evaluated every semester by students through a survey carried out by KTU Study Service. The results of the student surveys are also made available to the SPC, the departments, the Faculty and the Student Union. Round table discussions are organized with students so that they can provide face-to-face feedback and actions are taken based on the discussions.

Thus, at least on paper it seems that there is a well-structured hierarchical system providing at different levels quality assurance. The process is regulated by various policy documents of the university.

The finding of the EVPG during the site visit however, revealed that the whole process of programme management is not carried out effectively enough and in accordance with all the written rules and regulations. To this end, the following observations were made:

1. The teaching staff is not really actively involved in study programme management and review. The main role of teaching staff seems to be to review and update the course syllabi. The decisions for changes/improvements in study programmes are taken at a higher level (Dean, Heads of departments and Coordinators of study programmes). Thus there is little communication between the management team of the faculty/departments and the teaching staff. This communication indeed is limited not only with regards to programme management but with regards to most issues concerned with staff (research, teaching loads, staff development, etc.). To this end, the faculty and the department need to address seriously this issue and engage more the teaching staff in the decision-making processes.

2. No formal meetings take place between the social partners and the department in order to provide formal input. Such meetings take place on an individual basis (not as a group of social partners) and in an informal and ad-hoc basis, though regularly 2-3 times year. The social partners pointed out also during the site visit that there is a need for improving the language, social and soft skills, as well as presentation and communication skills of the students.
3. The student representative in the self-evaluation group did not have formal meetings with his colleagues in order to formally receive, record and provide input to the group. This again happens in an ad-hoc and informal basis. However, as pointed out during the meetings, students do provide input through questionnaires that they fill at the end of every semester, though no formal feedback is given to them with regards the input they provide and any action taken.

As a conclusion, the implementation of the whole process of engaging all stakeholders in programme review and management needs to be revised.

III. RECOMMENDATIONS

1. The faculty is recommended to re-examine its structure and its departments, as well as the co-operation of the departments in jointly offering study programmes, sharing courses at the 2nd cycle study programmes level and carrying out research activities.
2. The faculty is recommended to really encourage and engage the teaching staff in all activities of the department and faculty and especially in the decision making process. Thus, more power and at the same time responsibility, should be given to the teaching staff and the various boards. To this end, a better communication channel should also be established between teaching staff and the management team. The faculty and the department are also recommended to have a suitable recruitment policy to attract competent personnel from any minorities, including women.
3. The faculty and the department are recommended to provide a better work environment for the teaching staff (reduced teaching load, funding for research, conference participation and staff development). To this end, the faculty is recommended to carry out regularly a job satisfaction questionnaire.
4. The department is recommended to make clearer the profile, the description of the study programme and the career prospects of the graduates.
5. The department is recommended to make the programme more flexible by increasing the number of electives, allowing thus for personalized study plans according to the interests of the students and also making it more attractive to prospective students. This can easily be achieved by allowing students take elective courses from the other Master study programmes of the faculty without any petition and approval needed.
6. The department is recommended to enhance the research-orientation of the programme in order to meet the vision of a research university. The staff needs to engage further in research and research projects and collaborations and engage the students more in their research work and projects.
7. The department is recommended to enhance the internalization of the programme in order to attract more students, especially international ones. To this end, staff needs to engage more in exchange visits for teaching and research, attract more visiting staff from abroad and offer the courses and the programme in English. The department could also consider offering the programme in e-learning mode as all necessary infrastructures and expertise (e-learning Unit and Master study programme in *Information Technologies and Distance Education*) is available.

8. The department is recommended to carry out an annual questionnaire requesting feedback from both students and staff, with regards the facilities and resources in order to maintain the standards of the available resources.
9. The department is recommended to enhance the students learning experience by promoting further a student-centred learning environment, by utilizing Problem Based Learning (PBL) and collaborative work, by relating theory to real case scenarios, and by engaging students further and deeper in the research activities of the staff.
10. The department is recommended to encourage students to participate in out-of-class social activities organised by the department/faculty/university in order to improve their social and soft skills, as well as language, communication and presentation skills.
11. The department is recommended to further develop their quality assurance mechanisms and especially to audit the adherence to the rules and regulations so as the programme review/management process is carried out regularly and its results are formally recorded. The department is therefore recommended to set up formal arrangements through which all stakeholders are actively and meaningfully involved and their input is formally recorded and analysed and any actions taken communicated back to them.

IV. SUMMARY

Overall the External Evaluation Peer Group (EVPG) identified a general problem at the organizational and structural level of the faculty and its departments. Although the number of departments has been recently reduced though merging of departments, the EVPG believes that the structure of the faculty needs to be re-addressed. There seems to be lack of co-operation between the departments and lack of communication at the faculty and departmental level between the top management team and the teaching staff. Furthermore, teaching staff seemed to be distant/not engaged in the developments/changes taking place at the faculty, departments and study programmes, and they take no part in decision making. The faculty and the departments need to look into these issues.

The *Informatics* study programme provides a good second-cycle qualification. The admission numbers are quite good. The intended learning outcomes of the study programme are in line with the requirements of the seventh level of the European Qualification, however they need to be more clearly expressed in the English version of the study programme description. Furthermore, the description of the programme needs also to be clearer in all reports and publications leaflets (as well as on website); this will help attract even more students.

The study programme is structured and designed according to the formal and legal requirements, satisfying all Bologna process directives and the Lithuanian Law. The teaching methods, as stated in the course syllabi, are appropriate for the achievement of both the intended programme learning outcomes as well as the intended course learning outcomes. However, a more appropriate name should be chosen for the programme and the flexibility of the programme should be increased. Students should be allowed to take elective courses form the other Master study programmes of the faculty, without filing a petition and request for approval. The EVPG also recommends that the study programme structure becomes clearer. Finally, the internalization and research-orientation of the programme should also be enhanced and the department should consider offering the study programme in English and/or in e-learning mode. The EVPG believes that all the aforementioned suggestions will make the programme more attractive and increase further the number of students.

The staff (all men) are very well qualified and equipped with the knowledge, skills and expertise required for staff according to the legal, academic and subject-specific requirements for their appointment by the Kaunas University of Technology and the State of Lithuania. The staff members try to be engaged in meaningful research projects, activities and teaching exchanges

abroad. Also research collaboration with international partners is obvious, and could be strengthened. There are no women among the staff supporting the study programme and their absence from the higher management positions and professorships is notable. An obvious recommendation here would be to have a suitable recruitment policy to attract competent personnel from any minorities, including women. The department is recommended to improve the work conditions of staff by reducing teaching loads and providing incentives and financial support for research, participation in conferences and professional development. To this end, the faculty is recommended to carry out regularly a job satisfaction questionnaire. Finally the teaching staff is also recommended to take more initiatives and further engage in international research projects/collaborations.

The premises for studies, buildings, classrooms, laboratories, library and the teaching and learning equipment are more than adequate both in their quantity, size and quality; all are accessible by students with disabilities. The classrooms, library and computer labs are all well equipped. Computer equipment and the network are sufficient, properly administered and secured. Internet connection is sufficient and wireless network is accessible through the premises. There is a diversity of equipment, technology platforms and software available for the students. The premise/facilities include a very good Innovation and Business Center as well a very good e-learning Unit. The department is recommended to keep modernizing and improving the facilities and resources and to provide additional appropriate space for collaborative learning activities. Finally, in order to solicit feedback from all users, the department could carry out an annual questionnaire requesting feedback with regards to the facilities and resources.

The study process ensures an adequate provision of the programme and the achievement of the intended learning outcomes. The admission requirements are well founded. Students have opportunities to participate in student mobility programmes, although for various reasons students do not participate in such programmes. The Innovation and Business Centre at the University allows students to participate in business start-up initiatives. More effort however needs to be put in order to engage students in research activities. To this end, the teaching staff is encouraged to engage students in the research projects (through the thesis and/or relevant assessment work during their courses). The department needs also to address the issue of studies/work priority as the students, who have a job, especially during their thesis work, have conflicting priorities. E-learning facilities are provided and the existence of the e-learning Unit is notable. In general the department is recommended to enhance the students learning experience by promoting further the student-centred learning environment. Thus, Problem Based Learning,

collaborative work, participation of students in research projects of teaching staff and use of real life case studies should be further utilized in the learning process.

The study programme is managed and reviewed according to the documented standard and established methods and techniques that involve all stakeholders, namely, teaching staff, students, alumni and employers. However this does not seem to happen adequately and in a formal and systematic way and within the framework of established rules, regulations and procedures. Any feedback received from stakeholders and actions taken based on this are not formally recorded and communicated to them. It was evident that teaching staff, social partners/employers, students and alumni are not adequately actively and meaningfully involved in study programme review and improvement. The department is thus recommended to further develop programme management and review process, as well as the quality assurance mechanisms and to have an auditable system in place.

V. GENERAL ASSESSMENT

The study programme *Informatics* (state code – 621I10003) at Kaunas University of Technology 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	2
3.	Staff	3
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	2
	Total:	**17**

*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. Philippos Pouyioutas
Grupės nariai: Team members:	Prof. Manfred Nagl
	Dr Eleni Berki
	Mr Adomas Svirskas
	Mr Justinas Petravičius

KAUNO TECHNOLOGIJOS UNIVERSITETO ANTROSIOS PAKOPOS STUDIJŲ PROGRAMOS *INFORMATIKA* (VALSTYBINIS KODAS – 621I10003) 2014-01-22 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-47 IŠRAŠAS

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno technologijos universiteto studijų programa *Informatika* (valstybinis kodas – 621I10003) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	2
	Iš viso:	**17**

* 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

Ekspertų grupė identifikavo bendrą fakulteto ir jam priklausančių katedrų organizacinio ir struktūrinio lygmens problemą. Nors neseniai katedrų skaičius buvo sumažintas jas sujungus, ekspertų grupė mano, kad fakulteto struktūra turėtų būti peržiūrėta iš naujo. Ekspertų grupės nuomone, katedros nepakankamai bendradarbiauja, taip pat trūksta aukščiausio lygio administracijos darbuotojų ir dėstytojų bendravimo fakulteto ir katedrų lygmenimis. Be to, anot ekspertų grupės, dėstytojai yra atitolę / neįtraukiami į fakulteto, katedrų ir su studijų programomis susijusius patobulinimus / pokyčius bei nedalyvauja priimant sprendimus. Fakultetas ir katedros turėtų spręsti šiuos probleminius klausimus.

Informatikos studijų programa yra suteikiama gera antrosios studijų pakopos kvalifikacija. Priimamų į studijų programą studentų skaičius yra pakankamai didelis. Programos numatomi studijų rezultatai atitinka Europos kvalifikacijų sąrangos septintojo lygmens reikalavimus, tačiau jie turėtų būti aiškiau apibrėžti ir pateikti studijų programos apraše anglų kalba. Be to, visose savianalizės suvestinėse (įskaitant ir kitas vertintas studijų programas) ir informaciniuose

lankstinukuose (taip pat ir interneto svetainėje) turėtų būti pateikiamas aiškesnis studijų programos aprašas; tai padėtų pritraukti dar daugiau studentų.

Studijų programa yra sudaryta, vadovaujantis formaliais teisės aktų reikalavimais, įtvirtintais Bolonijos proceso dokumentuose ir Lietuvos Respublikos teisės aktuose. Dėstymo metodai, kaip nustatyta studijų dalykų aprašuose, yra tinkami tiek programos, tiek studijų dalykų numatomiems studijų rezultatams pasiekti. Vis dėlto rekomenduotina apsvarstyti tinkamesnio studijų programos pavadinimo pasirinkimo galimybę, taip pat padidinti programos lankstumą. Studentams turėtų būti leidžiama rinktis studijų dalykus iš kitų fakulteto magistrantūros studijų programų neteikiant prašymo ir neprašant specialaus patvirtinimo. Ekspertų grupė taip pat rekomenduoja peržiūrėti studijų programos sandarą, siekiant, kad ji būtų aiškesnė. Galiausiai, turėtų būti plėtojama studijų programos internacionalizacija ir orientacija į mokslo tiriamąją veiklą; katedra taip pat turėtų apsvarstyti galimybę studijų programą vykdyti anglų kalba ir (arba) e-mokymosi forma. Ekspertų grupės manymu, visi išvardyti siūlymai turi įtakos programos patrauklumo ir atitinkamai studentų skaičiaus didinimui.

Dėstytojai (visi vyrai) yra aukštos kvalifikacijos, turintys daug žinių, įgūdžių ir patirties, kurių yra reikalaujama atsižvelgiant į teisinius, akademinius ir konkretaus studijų dalyko dėstymui keliamus reikalavimus, kai dėstytojai yra įdarbinami Kauno technologijos universitete, pagal Lietuvos Respublikos teisės aktų nuostatas. Personalo nariai stengiasi dalyvauti reikšminguose mokslinių tyrimų projektuose, kitose veiklose ir dėstytojų mainų programose užsienyje. Bendradarbiavimas mokslinių tyrimų srityje su tarptautiniais partneriais yra akivaizdus, tačiau galėtų būti dar labiau plėtojamas. Tarp studijų programoje dėstančio akademinio personalo nėra moterų, taip pat yra pastebimas ir jų nebuvimas aukštesniojo rango vadovų pareigose bei tarp profesorių. Akivaizdi rekomendacija šiuo atveju būtų vykdyti atitinkamą įdarbinimo politiką, kuri leistų pritraukti kompetentingą personalą iš mažumų grupių, įskaitant ir moteris. Katedrai taip pat rekomenduojama gerinti dėstytojų darbo sąlygas mažinant dėstymo krūvį, skatinant bei teikiant finansinę paramą vykdyti mokslinius tyrimus, dalyvauti konferencijose ir tobulintis profesinėje srityje. Atitinkamai fakultetui rekomenduojama reguliariai vykdyti dėstytojų pasitenkinimo darbu apklausas. Galiausiai, dėstytojams rekomenduojama imtis daugiau iniciatyvos ir toliau dalyvauti tarptautiniuose mokslinių tyrimų projektuose.

Studijoms skirtos patalpos, pastatai, auditorijos, laboratorijos, biblioteka ir mokymo bei studijų įranga yra daugiau nei pakankami kiekio, apimties ir kokybės atžvilgiu. Visi ištekliai yra pritaikyti studentams su negalia. Auditorijos, biblioteka ir kompiuterių laboratorijos yra gerai įrengtos ir aprūpintos. Kompiuterinė įranga ir tinklas yra pakankami, tinkamai administruojami ir

saugūs. Interneto ryšys yra pakankamas. Bevielis interneto ryšys veikia visose patalpose. Įranga, technologijų platformos ir programinė įranga yra įvairi ir prieinama studentams. Universitete veikia labai pozityviai vertintini Inovacijų ir verslo centras, taip pat E-mokymosi centras. Katedrai rekomenduojama ir toliau tęsti materialiųjų išteklių modernizavimą ir gerinimą bei skirti papildomas tinkamas patalpas bendradarbiavimu pagrįstų studijų vykdymui.

Studijų procesas užtikrina tinkamą programos vykdymą ir numatomų studijų rezultatų pasiekimą. Priėmimo reikalavimai yra tinkamai nustatyti. Studentams yra suteikiamos galimybės dalyvauti judumo programose, tačiau dėl įvairių priežasčių studentai tokiose programose nedalyvauja. Inovacijų ir verslo centras universitete suteikia galimybę studentams dalyvauti verslo kūrimo iniciatyvose. Vis dėlto turėtų būti dedama daugiau pastangų siekiant skatinti studentus dalyvauti mokslo tiriamojoje veikloje. Šiuo tikslu dėstytojai yra skatinami įtraukti studentus į mokslo tiriamuosius projektus (rengiant baigiamuosius darbus ir (arba) studijuojant atitinkamus studijų dalykus – kaip vertinimo dalį). Katedra taip pat turėtų spręsti studijų ir (arba) darbo prioriteto klausimą, kuomet studentai, kurie dirba (ypač baigiamojo darbo rengimo metu) susiduria su problema, kuriai veiklai skirti prioritetą. E-mokymosi priemonės studijų procese yra naudojamos, E-mokymosi centro veikla yra pastebima. Apskritai, katedrai rekomenduojama plėtoti studentų mokymosi patirtį toliau kuriant į studentą orientuotą mokymosi aplinką, dėl šios priežasties studijų procese ir toliau turėtų būti skatinamas probleminis mokymasis, darbas kartu, studentų dalyvavimas dėstytojų mokslinių tyrimų projektuose, taip pat mokymo/-osi procese turėtų būti naudojami pavyzdžiai iš realaus gyvenimo.

Studijų programa yra vykdoma ir peržiūrima atsižvelgiant į dokumentuose nustatytus standartus, metodus bei priemones, kurie įtraukia visus socialinius dalininkus, t. y., dėstytojus, studentus, absolventus ir darbdavius. Vis dėlto šis procesas nevyksta adekvačiai – formaliai ir sistemingai, pagal nustatytas taisykles, reglamentus ir procedūras. Iš socialinių dalininkų gautas grįžtamasis ryšys ir veiksmai, kurių buvo imtasi juo remiantis, nėra formaliai įtvirtinami; suinteresuotosios šalys nėra apie tai informuojamos. Akivaizdu, kad dėstytojai, socialiniai partneriai / darbdaviai, studentai ir absolventai turėtų būti aktyviau ir prasmingiau įtraukiami į studijų programos peržiūrėjimo ir tobulinimo procesą. Todėl katedrai rekomenduojama toliau tobulinti studijų programos vadybą ir vertinimo procesą, taip pat kokybės užtikrinimo mechanizmus ir garantuoti patikrinamos sistemos buvimą.

III. REKOMENDACIJOS

1. Fakultetui rekomenduojama peržiūrėti savo struktūrą ir katedras, taip pat bendradarbiavimą tarp katedrų bendrai siūlant studijų programas bei dėstant studijų dalykus antrosios pakopos studijų programose ir vykdant mokslo tiriamąją veiklą.

2. Fakultetui rekomenduojama skatinti dėstytojus įsitraukti į visas katedros ir fakulteto veiklas, o ypatingai į sprendimų priėmimo procesą. Šiuo tikslu dėstytojams ir įvairiems struktūriniams daliniams turėtų būti suteikta daugiau įgaliojimų ir tuo pačiu atsakomybės bei turėtų būti užtikrinamos geresnės bendradarbiavimo sąlygos tarp dėstytojų ir vadovybės. Fakultetui ir katedrai taip pat rekomenduojama vykdyti tinkamą įdarbinimo politiką, kuri leistų pritraukti kompetentingą personalą iš įvairių mažumų grupių, įskaitant ir moteris.

3. Fakultetui ir katedrai rekomenduojama sukurti geresnę darbo aplinką dėstytojams (sumažinti darbo krūvį, finansuoti mokslinius tyrimus, dalyvavimą konferencijose ir profesinį tobulėjimą). Siekiant šio tikslo, fakultetui rekomenduojama reguliariai atlikti darbuotojų pasitenkinimo darbu apklausas.

4. Katedrai rekomenduojama parengti aiškesnį studijų programos profilį, aprašą ir aiškiau nustatyti absolventų karjeros perspektyvas.

5. Katedrai rekomenduojama orientuotis į lankstesnės studijų programos vykdymą padidinant laisvai pasirenkamų studijų dalykų skaičių, suteikiant studentams galimybę studijuoti pagal individualius studijų planus, atsižvelgiant į jų interesus, atitinkamai paverčiant studijų programą patrauklesne būsimiems studentams. Tai nesunkiai įgyvendinama leidus studentams rinktis pasirenkamuosius studijų dalykus iš kitų fakulteto magistrantūros studijų programų neteikiant jokių prašymų ir nereikalaujant pritarimo.

6. Katedrai rekomenduojama stiprinti programos orientaciją į mokslo tiriamąją veiklą, siekiant mokslo tiriamojo universiteto vizijos įgyvendinimo. Dėstytojai turėtų ir toliau dalyvauti moksliniuose tyrimuose, projektuose, bendradarbiauti bei labiau įtraukti studentus į mokslinį darbą ir projektus.

7. Katedrai rekomenduojama didinti programos tarptautiškumą siekiant pritraukti daugiau studentų, ypatingai iš užsienio. Taip pat dėstytojai turėtų aktyviau dalyvauti dėstymo ir mokslinių tyrimų mainų vizituose, turėtų būti kviečiama daugiau dėstytojų iš užsienio,

studijų dalykai dėstomi ir programa vykdoma anglų kalba. Katedra galėtų apsvarstyti galimybę vykdyti studijų programą e-mokymosi forma, nes tam yra sukurta visa reikiama infrastruktūra, taip pat turima pakankamai kompetencijos (E-mokymosi centras ir *Informacinių technologijų ir nuotolinio mokymosi* magistrantūros studijų programa).

8. Katedrai rekomenduojama vykdyti metinę apklausą orientuotą į studentų ir dėstytojų grįžtamojo ryšio teikimą apie materialiąją bazę, siekiant užtikrinti turimų išteklių atitikimą standartams.

9. Katedrai rekomenduojama didinti studentų mokymosi patirtį toliau plėtojant į studentą orientuoto mokymosi aplinką, taikant probleminį mokymąsi ir darbą kartu, susiejant dėstomą teoriją su realiais pavyzdžiais praktikoje ir dar labiau įtraukiant studentus į dėstytojų vykdomą mokslo tiriamąją veiklą.

10. Siekiant pagerinti studentų socialinius ir kitus ne techninius gebėjimus, taip pat kalbos, bendravimo ir pristatymo įgūdžius, katedrai rekomenduojama skatinti studentus dalyvauti socialinėje veikloje, kurią organizuoja katedra / fakultetas / universitetas.

11. Katedrai rekomenduojama toliau tobulinti kokybės užtikrinimo mechanizmus, ypač daug dėmesio skiriant peržiūrėjimui kaip laikomasi nustatytų taisyklių ir reglamentų, siekiant užtikrinti, kad programos peržiūrėjimo / vadybos procesas būtų vykdomas reguliariai, o jo rezultatai būtų oficialiai įforminami. Todėl katedrai rekomenduojama įtvirtinti formalius susitarimus, kurių pagalba visos suinteresuotosios šalys būtų labiau ir prasmingiau įtraukiamos į studijų kokybės užtikrinimą, o jų teikiamas grįžtamasis ryšys oficialiai fiksuojamas ir analizuojamas bei joms būtų pranešama apie visus veiksmus, kurie buvo atlikti.

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Paslaugos teikėjas patvirtina, jog yra susipažinęs su Lietuvos Respublikos baudžiamojo kodekso[1] 235 straipsnio, numatančio atsakomybę už melagingą ar žinomai neteisingai atliktą vertimą, reikalavimais.

[1] Žin., 2002, Nr.37-1341.