



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Lietuvos edukologijos universiteto  
***INFORMATIKOS STUDIJŲ PROGRAMOS (621I10004)***  
**VERTINIMO IŠVADOS**

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**EVALUATION REPORT OF *INFORMATICS***  
**(621I10004)**  
**STUDY PROGRAMME**

at Lithuanian university of educational sciences

Grupės vadovas:  
Team leader:

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Išvados parengtos anglų kalba  
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## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Informatika</i>
Valstybiniai kodai	621I10004
Studijų sritis	Fiziniai mokslai
Studijų kryptis	Informatika
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2)
Studijų programos apimtis kreditais	120
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos magistras
Studijų programos įregistravimo data	2010-08-26 Nr. 1-01-89

## INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Informatics</i>
State code	621I10004
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)
Volume of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master of Informatics
Date of registration of the study programme	2010-08-26 Nr. 1-01-89

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## I. INTRODUCTION

Lithuanian University of Educational Sciences (further referred as LEU) is a major teacher training institution in Lithuania. It was founded in 1935 as the Pedagogical Institute. Currently, there are 9 faculties in LEU: Faculty of Philology, Faculty of Physics and Technology, Faculty of Natural Sciences, Faculty of History, Faculty of Lithuanian Philology, Faculty of Mathematics and Information Technologies, Faculty of Education, Faculty of Social Sciences, Faculty of Sports and Health Education. Master degree study programme *Informatics* is administered by the Faculty of Mathematics and Information Technologies, namely, by the Department of Informatics in this Faculty.

External evaluation of LEU study programme *Informatics* has been conducted by an international expert group consisting of Prof., Dr. Vladimir Oleshchuk (leader of the group), Prof. Dr. Jörg R. Mühlbacher, Prof. Dr. Jukka Paakki, Doc. Dr. Daiva Vitkutė-Adžgauskienė, Faustas Zubka and Juras Biliūnas through analysis of the self-evaluation report and meetings with the administrative staff of the Faculty of Mathematics and Information Technologies, the group of preparation of the self-evaluation report, teaching staff of the study programme, recent students of the programme and graduates and their employers. The site visit to LEU took place on March 1, 2013.

The Expert group has analysed the programme aims and learning outcomes, curriculum design of the programme, staff competence, facilities and learning resources, quality assurance (management) of the programme and study process.

Master degree programme *Informatics* was assessed and accredited in 2010. In the final conclusions the following weaknesses of the programme *Informatics* were identified by the experts: high dependence on teaching/research capabilities coming from outside of LEU; some subjects not giving in-depth Master level training for Bachelors not coming from LEU, lack of elective/adjustment courses; need for faculty staff training on modern curriculum design issues; programme management and efficiency of stakeholders participation should be improved.

One of the aims of the present evaluation were to assess changes made in accordance with the remarks and recommendations of the previous evaluation.

## II. PROGRAMME ANALYSIS

### *1. Programme aims and learning outcomes*

The study programme *Informatics* has been registered in 1995. It has been continuously improved taking into account changing requirements for training of Masters. The Master study programme currently submitted for the assessment was prepared following former remarks and recommendations of international experts expressed during an external assessment of the study programme in 2010.

The need for this programme is based on the demand of highly qualified information technology specialists, stated in surveys by European analytics and also data from the InfoBalt association in Lithuania.

The aims of the study programme are to prepare future researchers, doctors and teachers as well as to train qualified specialist in informatics who are able to meet challenges imposed by fast changing technologies.

Both the programme aims and learning outcomes are well defined, based on academical and professional requirements, consistent with the type and level of studies. Links between study programme learning outcomes and learning outcomes of individual subjects are specified.

However, the programme is not properly presented publically – its presentation on the Web is very limited as LEU website shows only lists with study programme names and scanned booklets with Programme aims and intended learning outcomes different from those given in the self-assessment report. Information in English on the website is limited only to the list of programmes without any details on them. During the meetings students did not specify that they are using some additional intranet information, therefore both the external and the internal community is not informed well enough about the study programme aims and learning outcomes..

### *2. Curriculum design*

The curriculum includes most of standard subjects of informatics. A balanced combination of informatics and mathematics subjects is the strong part of the programme. International

experience and model curricula guidelines (ACM IEEE Computer Society CC2005) are used when constructing the programme. Contact works is organised during all four semesters of the study which allows an evenly distributed workload during the study period.

Attempts to improve the study programme content were made since the last evaluation of the programme, e.g., the „Human-Computer Interaction“ subject and topics on modern internet content management systems has been added..

However, due to the fact that most of the students for the Programme are coming from inside, i.e. after graduating from LEU informatics and mathematics Bachelor programmes, the Programme is too much oriented to students who have studied Math before and therefore need courses of introductory character, which – on the other hand - would be redundant for those who have studied Informatics before. The following shows a typical example of this situation: in case of „Data types and structures“ study subject, the title of subjects should better reflect subjects' content and be different from subjects given on bachelor level – currently, the specified goals of the study subject, such as „to learn how to select the required variable type of program variables“, are typical to introductory Bachelor study subjects. For those possessing Bachelor degree in informatics from other universities, such Master study subjects would be a repetition what they already have learned.

The content of some subjects should be revised and updated to include contemporary knowledge (e.g., no needs on explicit listing of Windows 95, windows 3.11, etc. in study subject plans of operating system study subjects, these systems are entirely outdated now.).

Prerequisites are missing in description of subjects. Therefore, it is hard to consider whether the sequence of the study subjects is reasonably established.

There are elective study subjects in the programme, In praxis however, there is no flexibility in selecting these subjects, as students have to take group decision due to small numbers of students.

### ***3. Staff***

Programme employs qualified teaching staff, doing strong research mostly in the area of the subjects taught. The study programme is implemented by 10 teachers. All but one programme

teachers are doctor degree holders, and one teacher is a Ph.D student. When employing programme teachers, close relations are with the Institute of Mathematics and Informatics (now part of the Vilnius University). 40% of the teachers are employed as part-time, with their main position at the Institute of Mathematics and Informatics.

A weak point of the program is the fact that a rather large number of the part time teachers are coming from other educational institutions. Increase in full-time teaching staff would give larger stability for the programme.

The age of teachers varies - more than half of teachers are recent PhD graduates, having obtained their doctoral degree in 2001-2012, or still resuming their PhD studies. Therefore, the risk of staff shortage because of retirement is not high which shows that adequate provision of the programme is ensured.

Practically all staff members are involved in scientific research activities, including cooperation with international partners, and have recent scientific publications in their research field. However, the self-assessment report mentions lack of possibilities for professional development and attending high-level conferences abroad. Mainly due to lack of funding the mobility of teachers is not at sufficient level.

#### ***4. Facilities and learning resources***

There are a sufficient number of auditoriums and computer classes for running the programme. However, computer classes are equipped with rather basic hardware and software. Students express need to be trained using advanced contemporary software, e.g. a need for the inclusion of Oracle software systems in the study process.

Students are not provided with student licenses for software they use in studies. Therefore, they are not able to use this software at home legally.

There are rather few informatics-related books in the reading hall. Digital library content, necessary for the field of studies is being subscribed, however, it should be broader. E.g., access to IEEE/ACM digital libraries should be provided to students and teaching staff of the Programme. The University should take immediate actions for obtaining the rights to these

libraries, which is essential not only for scientific research in Informatics but also for the Master's theses in the area.

The main reference lists for separate study subjects give mainly literature in Lithuanian language, more contemporary literature in English language would be reasonable for Master studies.

Supportive electronic learning material is provided for the Programme study subjects in the Moodle virtual learning environment. However, there are only several cases of electronic resources (books, etc.) given among main references in subject descriptions.

### ***5. Study process and student assessment***

Students having completed the undergraduate level in mathematics or computer science fields are admitted to the Master study programme of *Informatics*. Entrants of the programme are mostly Bachelor graduates of LEU. As we have pointed out already, the programme content is too much tailored towards mathematicians with lower level of informatics knowledge. Students having graduated from Informatics Bachelor study programmes at other institutions would experience repetition of basic informatics content they have already had in their Bachelor programmes.

The total number of enrolled students is stable over the last five years; however, the number of state-funded places is decreasing. The drop-out of students in 2010-2011 was 30-40%, however this number was reduced to 10% in 2012.

Study process organization is logical. Adequate share of the programme is dedicated for both theoretical and practical studies. Scientific practice is included in the study process, training students in conducting research activities and thesis writing. Lectures are scheduled in a convenient way for Master students, taking into account that the majority of them are working. All lectures at LEU start from 5 o'clock in the evening.

Programme students do not take any opportunity to participate in mobility program due to low activity of students and insufficient foreign languages skills (reasons given by LEU). However, the main reason pointed out by the students is that almost all of them have jobs and do not want to sacrifice their work and career perspectives for half-year studies abroad.



Students can obtain information about on-going processes in the university, about the study programme, career opportunities, etc. online, on bulletin boards, sent individually by e-mail. However, not all the necessary information is provided – e.g. information about the goals and learning outcomes of the programme is not publicly accessible.

Student support seems to be good. Online consultation methods are applied. Under necessity, students may be given a possibility to study according to an individual study plan. However, over the last years there have been no such students. All the students of the Programme, who study in the state-financed places, are entitled to scholarship. All the students, who express a wish, may get a place in students' hostel, which is 5 minutes away from the University.

Students' research work, as illustrated by the Master thesis works, is on good level. Accumulative marks are used for evaluating students' knowledge – both students' progress during the semester and the mark of the final exam are taken into consideration.

## ***6. Programme management***

Study programme committee, consisting of both faculty and social partner members, is monitoring the implementation of the Programme. Programme is periodically reviewed, and the renewals are approved in the meeting of the Department or Faculty Council. However, the self-assessment report does not specify how executive management of the Programme is being executed, i.e. it is not clear to whom the role of everyday Programme management is assigned. No additional information on this point was given during the site visit. Responsibilities for executive management and for coordination of the Programme should be clearly separated.

There is no evidence of regular information and data collection about the implementation of the Programme. Students' questionnaires are being used to monitor the student's attitude towards the Programme, and, specifically towards the delivery of separate study subjects. However, such monitoring is not systematic - only four teachers are named in the self-assessment report as using such questionnaires. There is no evidence, whether any of the changes in the Programme were done taking into account students' opinion. Also, the overall quality assurance process is not defined, no specific references to university or faculty documents, regulating the quality assurance process are given.

Faculty and Programme has social partners from both academic and business fields, but social partners from other Lithuanian scientific and educational institutions, especially those from The Institute of Mathematics and Informatics of Vilnius University, are prevailing, and only a very small number is coming from real business field. Moreover, it is not clear, how the social partners are involved in the Programme development. No formal procedures about collecting opinion and suggestions from social partners and alumni are in place.

### III. RECOMMENDATIONS

1. Programme aims and study outcomes should be made publicly accessible on the LEU website and on the intranet.
2. The title of subjects should better reflect subjects' content and must be different to subjects given on bachelor level.
3. More flexibility (real options) should be provided for students in the curriculum.
4. The number of teachers coming from other institutions should be decreased in order to have more stability in the Programme.
5. Computer classes should be equipped with more advanced software and a provision concerning licenses should be made, so that students can use the recommended or needed software at home as well.
6. Subject descriptions should include more electronic books and contemporary books in English language in the main subject reference lists.
7. Programme management process should be revised, separating executive management and monitoring activities.
8. Explicit procedures for programme quality assessment, involving students, social partners and alumni, should be formulated.

#### IV. SUMMARY

Master degree study programme *Informatics* is administered by the Department of Informatics in the Faculty of Mathematics and Information Technologies of LEU.

The Programme employs skilled teachers with strong research background, both theoretical and practical aspects of training are covered. Students are involved in research activities, Master thesis are on a good level.

However, more attention should be paid to the improvement of the programme structure and content - the title of subjects should better reflect subjects' content and be different from subjects given on bachelor level, students should be provided with real options for elective subjects, prerequisites should be listed for all study subjects in order to provide a logical sequence of subjects in the programme. More full-time teachers would be necessary in order to provide better stability of the programme with respect to the teaching staff.

Computer classes are equipped with rather basic hardware and software. Students express need to be trained using advanced contemporary software. Student licenses for software used in classes should be provided, in order to use this software at home legally.

There are rather few informatics-related books in the reading hall, digital library content, necessary for the field of studies should be broader. More contemporary literature in English language as well as more electronic resources should be included in the reference lists in study subject descriptions.

Programme management process should be revised, separating executive management and monitoring activities. Quality assurance process should be defined more explicitly, including the involvement of students, social partners and alumni.

Overall, the programme is on a good level, and the proposed improvements can be introduced without greater problems.

## V. GENERAL ASSESSMENT

The study programme *Informatics* (state code 621I10004) at Lithuanian university of educational sciences is given **positive** evaluation.

*Study programme assessment in points by evaluation areas.*

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Staff	3
4.	Material resources	2
5.	Study process and assessment (student admission, study process, student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	2
	<b>Total:</b>	<b>16</b>

\*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

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## V. APIBENDRINAMASIS ĮVERTINIMAS

Lietuvos edukologijos universiteto studijų programa *Informatika* (valstybiniai kodai – 621I10004; 62409P102 ) vertinama **teigiamai**.

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

\* 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

Magistro laipsnio studijų programą „Informatika“ administruoja LEU Matematikos ir informacinių technologijų fakulteto Informatikos katedra.

Programoje dėsto patyrę dėstytojai, turintys didelę patirtį mokslinių tyrimų srityje; apimami teoriniai ir praktiniai mokymo aspektai. Studentai dalyvauja tyrimų veikloje, magistro baigiamųjų darbų lygis yra geras.

Tačiau daugiau dėmesio treikėtų skirti programos struktūros ir turinio tobulinimui: dalykų pavadinimai turėtų geriau atspindėti dalyko turinį ir skirtis nuo tų, kurie dėstomi bakalauro lygio studentams; studentams turėtų būti suteikiamos realios galimybės laisvai pasirinkti pasirenkamuosius dalykus, visiems studijų dalykams turėtų būti išvardytos prielaidos

siekiant išlaikyti loginę programos dalykų seką. Norint programai suteikti didesnę stabilumą, reikėtų daugiau nuolatinių dėstytojų.

Kompiuterių klasės aprūpintos pernelyg bazine technine ir programine įranga. Studentai išreiškė poreikį mokymams, kaip naudotis pažangia šiuolaikine programine įranga. Studentams turėtų būti numatytos klasėse naudojamos programinės įrangos licencijos, kad jie galėtų legaliai naudoti šią programinę įrangą namuose.

Skaitykloje yra pernelyg mažai su informatika susijusių knygų, skaitmeninės bibliotekos turinys turėtų būti platesnis. Studijų dalykų aprašų pagrindiniame literatūros sąrašė turėtų būti nurodyta daugiau šiuolaikinių knygų anglų kalba ir elektroninių knygų.

Reikėtų peržiūrėti programos vadybos procesą ir atskirti vykdomosios vadybos ir stebėsenos veiklą. Aiškiau reikėtų apibrėžti kokybės užtikrinimo procesą įtraukiant studentus, socialinius partnerius ir absolventus.

Apskritai, programos lygis yra geras, o siūlomi patobulinimai gali būti įgyvendinti be didesnių problemų.

### **III. REKOMENDACIJOS**

1. Programos tikslai ir studijų rezultatai turėtų būti viešai prieinami LEU tinklalapyje arba vidiniame tinkle.
2. Dalykų pavadinimai turėtų geriau atspindėti dalykų turinį ir privalo skirtis dalykų, kurie dėstomi bakalauro lygyje.
3. Studijų turinys turėtų studentams suteikti daugiau lankstumo (realių galimybių).
4. Norint užtikrinti programos stabilumą, reikėtų sumažinti iš kitų institucijų ateinančių dėstytojų skaičių.
5. Kompiuterių klasės turėtų būti aprūpintos pažangesne programine įranga ir numatytos licencijos, kad studentai taip pat galėtų naudoti rekomenduojamą arba reikiamą programinę įrangą namuose.
6. Dalykų aprašuose pateiktame pagrindiniame literatūros sąrašė turėtų būti nurodyta daugiau elektroninių knygų ir šiuolaikinių knygų anglų kalba.
7. Reikėtų peržiūrėti programos vadybos procesą ir atskirti vykdomosios vadybos ir stebėsenos veiklą.
8. Reikėtų suformuluoti aiškia programos kokybės vertinimo tvarką, kurioje dalyvautų studentai, socialiniai partneriai ir absolventai.